EtherCAT Servo
User manual



KS300-E



KS100-E

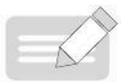
item			Description
The base The Gauge "	Mode of control		IGBT PWM control, sine wave current drive mode. 220V
	Encoder feedback		17bit bus type encoder
	Conditions of use	Use/store temperature *1	0 ~+ 45 ° C (If the ambient temperature is above 45 ° C, the usage should be reduced, and the average load ratio should not be higher than 80%) /-25~+55° C.
		Use/store humidity	Below 90%RH (no condensation).
		Vibration/impact strength	4.9m/s2/19.6m/s2
		Level of protection	IP10
		altitude	Less than 1000ml
		Environmental pollution level	PD2
		Overvoltage level	OVCIII
EtherCAT slave station specifications	EtherCAT slave station basic performance	Communication protocol support services	EtherCAT protocol
			COE (PDO、 SDO)
		Synchronous mode	Dc-distributed clock
		Physical Layer	100BASE-TX
		Baud rate	100 Mbit/s (100Base-TX)
		Duplex mode	Full duplex
		Topology	Ring, line shape
		Transmission media	Super Category 5 or better network cable with shielding
		Transmission distance	Less than 100M between two nodes (good environment, good cable)
		Number of slave stations	Protocol support to 65535, the actual use of no more than 100
		EtherCAT frame length	44 bytes to 1498 bytes
		Process data	A single Ethernet frame has a maximum of 1486 bytes
		Synchronous jitter of two slave stations	<lus
		Refresh time	1000 switching quantity input output about 30us100 servo shaft about 100us
		Communication bit error rate	10-10 Ethernet standard
	EtherCAT Configuration Unit	FMMU unit	8 for
		Storage Sync Snap-in unit	8
		Process data RAM	8KB
		Distributed clock	64-bit
		EEPROM capacity	32Kbit

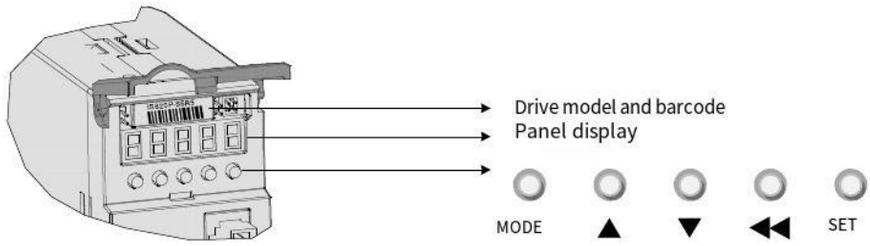
item			Description
Input/output signal			8-way DI(where DI8 and DI9 are high speed DI inputs) 37 DI functions: Servo enable, alarm reset, gain switching, master and auxiliary operation instruction switching, multi-segment speed DI switching operation direction setting, multi-segment operation instruction switching (4 channels DI), zero fixed function enable, forward overrun switch, reverse overrun switch, positive
Built-in features	Protection function		Overcurrent, overvoltage, undervoltage, overload, abnormal detection of the main circuit, overheating of the radiator, lack of phase of the power supply, overspeed, abnormal encoder, abnormal CPU, abnormal parameters, others
	LED display function		Main power supply CHARGE, 5-digit LED display
	Observation with analog monitoring function		Built-in analog monitoring connector for observing speed, torque instruction signals, etc
	RS232 Communication		Status display, user parameter setting, monitoring display, alarm tracking display, JOG running with automatic tuning operation, speed, torque command signal mapping function
	Other		Gain adjustment, alarm recording, JOG running

Feature	Content
Cycle sync position mode	The host computer plans the position instruction, and gives the instruction periodically through the bus, and the servo drive completes the positioning process.
Cycle synchronization speed mode	The upper computer plans the speed instruction, and gives the instruction periodically through the bus, and the servo driver completes the speed tracking.
Cycle synchronous torque mode	The host computer plans the torque instruction, and gives the instruction periodically through the bus, and the servo driver completes the torque output.
Contour position mode	The upper computer sets parameters through the bus, the servo driver plans the position instruction, and completes the positioning process.
Contour speed mode	The host computer sets parameters through the bus, the servo driver plans the speed instruction, and the servo driver completes the speed tracking.
Contour torque mode	The upper computer sets parameters through the bus, the servo driver plans the torque instruction, and the servo driver completes the torque output.
Origin regression mode	The host computer selects the origin regression mode through parameters, and the driver automatically returns the origin.
Probe function	Latch position information when external DI signal or Z signal changes.
High resolution encoder	Use a high performance encoder with a resolution of 131072P/r.

* 1

NOTE





4-1

(5 7 LED)

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4-1

name	Regular features
MODE key MODE	Switch between modes to return to the upper-level menu
UP key ▲	Increase LED nixie flicker bit value
DOWN key ▼	Reduce the LED nixie flicker bit value
SHIFT key ◀◀	Change LED nixie flicker bit Look at the high digit value for data longer than 5 bits
SET key SET	Go to the next level menu Run commands for storing parameter Settings

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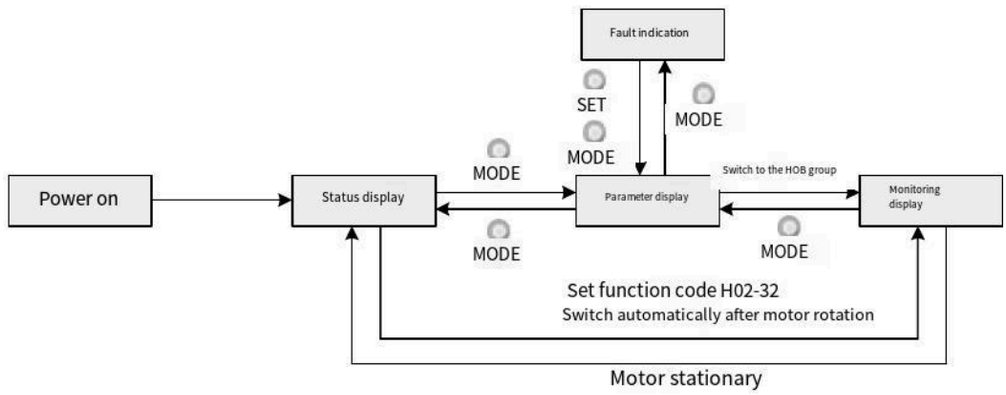
Panel display	Dictionary of objects operated by the upper computer
H00-00	2000-01h
H00-01	2000-02h
……	……
HO1-09	2001-0Ah

Panel display	Dictionary of objects operated by the upper computer
H01-10	2001-0Bh
……	……
H02-15	2002-10h

NOTE

◆ The following describes the content displayed and set parameters on the panel in the form of the panel side (decimal), which is related to the background of the host computer

The number (hexadecimal) is not consistent, please pay attention to the above relationship when necessary to do a good conversion.



4-2

MODE

2002-21h

2002-21h

5 SET

MODE

reveal	Name	Show occasion	Show meaning
FESEE	Reset Servo initialization	Servo power-on moment.	The drive is in the initialization or reset state. Wait for initialization or reset to complete and automatically switch to other states.
nr	nr Servo Not ready	Servo initialization is complete, but the drive is not ready.	Because the main loop is not powered on, the servo is not operational. For details, please refer to
ry	ry Servo Ready	The drive is ready.	The servo drive is in the operational state, waiting for the host computer to give the servo enable signal.
rn	rn Servo is running (Run)	The servo enable signal is active. (S-ON is ON)	The servo drive is in the running state.

reveal	Name	Show occasion	Show meaning
8	1-8 - Control mode		Displays the current operating mode of the servo in hexadecimal numbers without blinking. 1: Contour position control 3: Contour Speed mode 4: Contour torque pattern 6: Back to zero mode 8: Cycle sync position mode 9: Cycle sync speed mode A: Periodic synchronous torque mode
8	1-8 - Communication status		Displays the ETherCAT state machine status of the slave station in character form. 1: Initialize the state 2: Pre-running status 4: safe operation state 8: operating status
	- Port 1 Connect indication	PORT1	Long dark: No communication connection is detected at the physical layer Long bright: A communication connection has been established at the physical layer
	- Port 0 connection indication	PORTO	

reveal	Name	Content
HXX.YY	Functional code group	XX: Function code group number YY: function code group number

H02-00

reveal	Name	Content
H0200	Function code H02-00	02: Function code group number 00: function code group number

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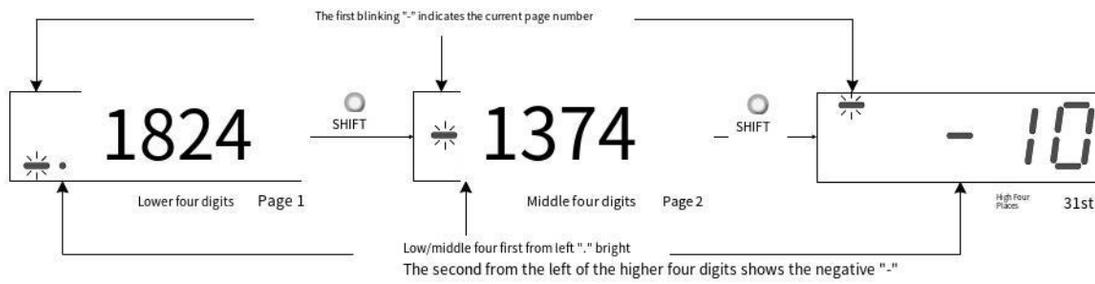
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65535

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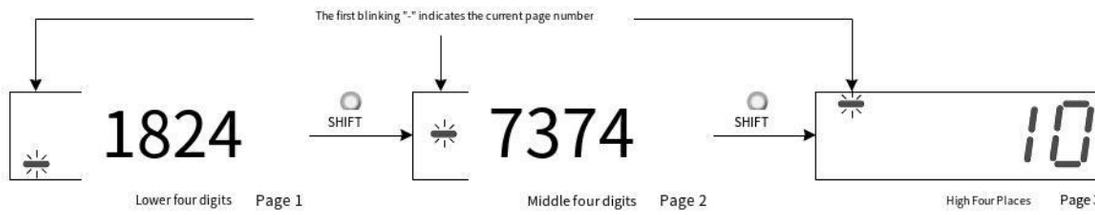
5 + SHIFT 2

-1073741824



4-3 1073741824

1073741824



4-4 1073741824

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reveal	Name	Content
1000	Decimal point	100.0

3

reveal	Name	Show occasion	Show meaning
donE	Done Parameter setting completed	Parameter setting successful	Indicates that the parameter value has been set and stored in the servo drive (Done). At this time, the drive can perform other operations
F. In IE	F.InIt parameter is restored to the value	Currently using System parameter initialization function (H02-31=1)	The drive is in the process of restoring parameters to factory Settings (Function Code Initialize). Wait for the system parameter initialization to complete and reconnect the control power
Error	Error Password error	Use the User password feature (H02-30), password entered incorrectly	An Error message is displayed indicating that you have entered the password. You need to re-enter the password
Γυπε	TunE	Use the one-click self-adjustment function	One-click self-adjustment is in progress

reveal	Name	Show occasion	Show meaning
FR IL	FAIL	Use one-click self-tuning Whole Function	One-click self-adjustment fails

Call the police instructions

200B-22h 200B-23h

2002-20h=2

Er.941

reveal	Name	Content
Er.941	Current warning code	Er.: The servo drive is faulty or warning 941: Warning code

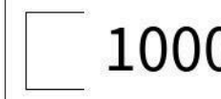
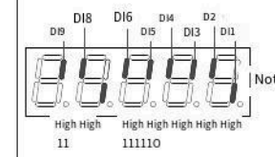
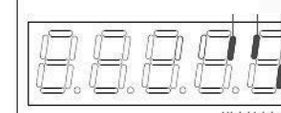
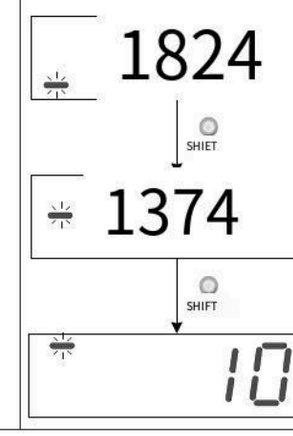
200Bh

2002-21h( )

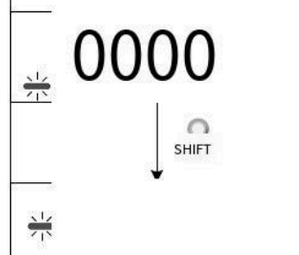
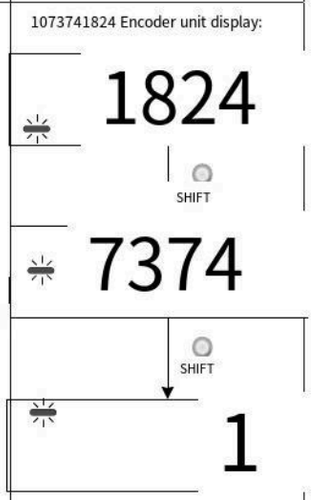
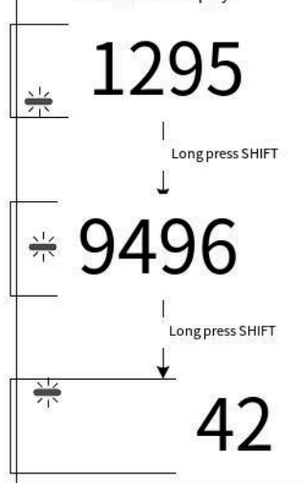
H0B 200B-21h

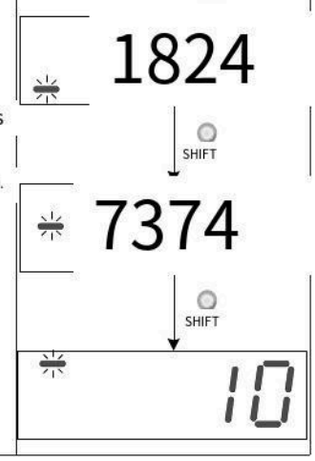
200B-21h=00 0 200B-01h 200Bh

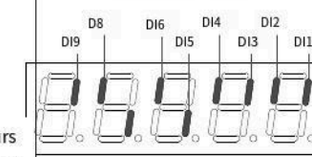
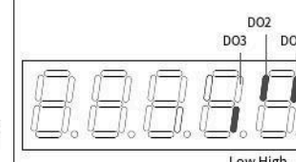
Function code		Name	Units	Denoting meaning	Show examples
Panel side	The background side of the upper computer				
HOB-00	200B-01h	Actual motor speed	rpm	The actual running speed of the servo motor can be accurate to 1rpm by rounding	3000rpm display: 3000 -3000rpm display: -3000.
HOB-01	200B-02h	Speed instruction	rpm	Drive current speed instruction	3000rpm Displays: 3000 -3000rpm displays: -3000.

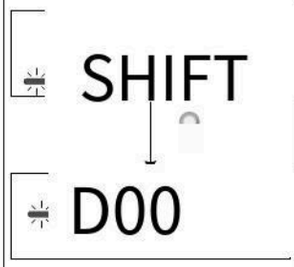
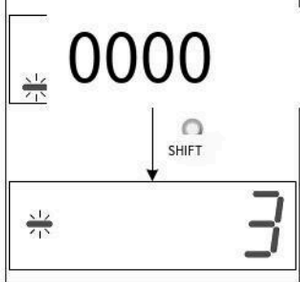
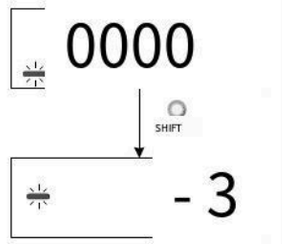
Function code		Name	Units	Denoting meaning	Show examples
Panel side	The background side of the upper computer				
HOB-02	200B-03h	Internal torque instruction	0.1%	Actual output torque of the servo motor as a percentage of the rated torque of the motor	100.0% Display:  -100.0% Display: 
HOB-03	200B-04h	Input signal (DI signal) monitoring	-	The corresponding level state of 8 DI terminals: the upper half of the digital tube is on, indicating a high level; (denoted by "1") Lower half light indicates low level (denoted by "0") The HOB-03 read by the background software is a decimal value	Take DI1 terminals as low level and DI2 to DI9 terminals as high level as an example: The corresponding binary code is "110111110" which corresponds to background reading HOB-03=446. The following is displayed:  620N None DI7.
HOB-05	200B-06h	Output signal (DO signal) monitoring	-	The level state corresponding to the 3 DO terminals: the upper half of the digital tube is bright, indicating a high level (represented by "1") Lower half light indicates low level (denoted by "0") The HOB-05 read by the background software is a decimal value	Take DO1 terminals as low level and DO2 to DO3 terminals as high level as an example: The corresponding binary code is "110"; Corresponding background reading HOB-05=6. It appears as follows: DO2DO3 | DO1 
HOB-07	200B-08h	Absolute position counting instruction unit (32-bit decimal display)		Current absolute position of motor (instruction unit)	1073741824 Instruction unit displays: 

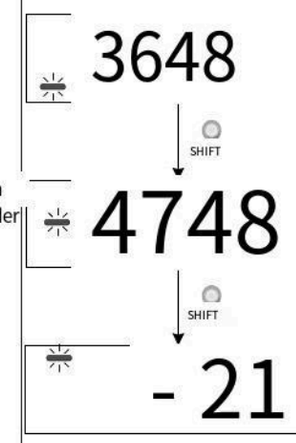
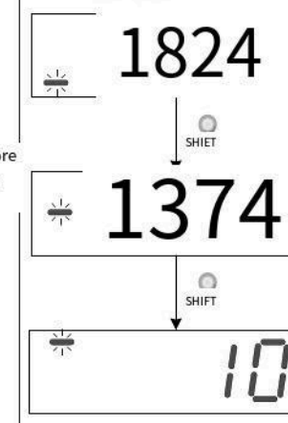
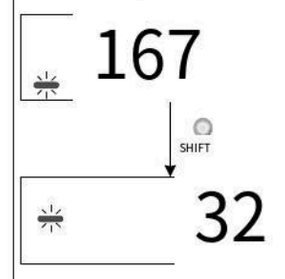
Function code		Name	Units	Denoting meaning	Show examples
Panel side	The background side of the upper computer				
HOB-09	200B-0Ah	Mechanical Angle	P	Current mechanical Angle of motor (p) 0 corresponds to a mechanical Angle of 0° Incremental encoder HOB-09 Maximum: Number of encoder lines x 4-1 (Example: 2500 line incremental encoder, HOB-09 maximum 9999) Absolute encoder HOB-09 Max: 65,535 Actual mechanical Angle = HOB-09 / (HOB-09 Maximum value +1) X 360.0 °	10000p Display: 1000
HOB-10	200B-0Bh	Rotation Angle (electrical Angle)	°	Current electrical Angle of the motor	360.0° shows: 36003000rpm Display:
HOB-11	200B-0Ch	Enter position instructions corresponding to speed information	rpm	The driver's position instruction for a single control cycle corresponds to the speed value	3000-3000rpm displays: - 3000.
HOB-12	200B-ODh	Average load rate	0.1%	Average load torque as a percentage of the rated torque of the motor	100.0% Display: 1000
HOB-13	200B-OEh	Input position instruction Instruction Single counter (32-bit decimal display)		Count and display the number of input position instructions	1073741824 Instruction unit displays: 1824 SHIET 1374 SHIET 10

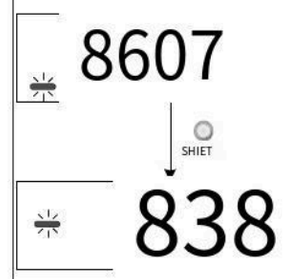
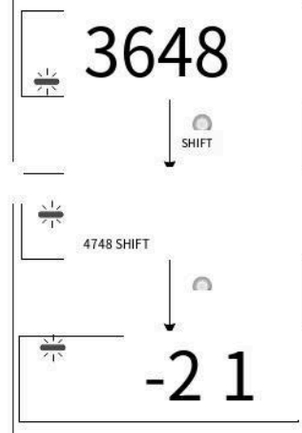
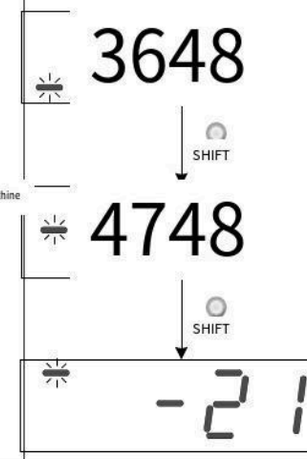
Function code		Name	Units	Denoting meaning	Show examples
Panel side	The background side of the upper computer				
HOB-15	200B-10h	Encoder position deviation counter (32-bit decimal display)	Encoder units	Encoder position deviation = Total number of input position instructions (encoder units) Total number of encoder feedback pulses (encoder units)	10000 encoder unit display: 
HOB-17	200B-12h	Feedback pulse counter (32-bit decimal display)	Encoder units	Statistics and display servo motor position feedback (encoder unit) Note: When using an absolute motor, the HOB-17 can only reflect the low 32 bits of the motor position feedback. In this case, the actual motor position feedback must be obtained through HOB-77(the absolute encoder absolute position is 32 bits lower) and HOB-79(the absolute encoder absolute position is 32 bits higher).	1073741824 Encoder unit display: 
HOB-19	200B-14h	Total power-on time (32-bit decimal display)	0.1s	Collects and displays the power-on time of the servo drive	429496729.5s display: 
HOB-24	200B-19h	Phase current effective value	0.01A	Effective value of phase current of servo motor	4.60A display: 

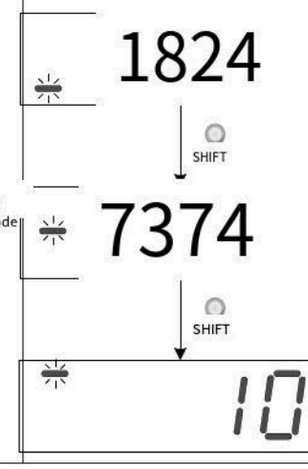
Function code		Name	Units	Denoting meaning	Show examples
Panel side	The background side of the upper computer				
HOB-26	200B-1Bh	Bus voltage value	0.1V	The DC bus voltage value of the main circuit, that is, the voltage between the driver P diameter, -	After AC220V rectification: 311.0V Display: 03110 AC380V after rectification: 537.0V display: 05310
HOB-27	200B-1Ch	Module temperature	°C	Internal power module temperature of servo drive	27 ° C Display: 027
HOB-33	200B-22h	Fault record	-	Set the number of times you want to view historical failures 0- Current fault 1- Previous failure 2- Last 2 failures ..... 9- Top 9 failure	0- Current fault displays: 0
HOB-34	200B-23h	The selected number of failure codes	-	HOB-33 Selected fault code HOB-34 displays value of "Er.000 "when no fault occurs	If HOB-33=0, HOB-34=Er.941, the current fault code is 941. The following is displayed: Er.941
HOB-35	200B-24h	The selected fault time stamp	s	HOB-34 shows the total time the servo is running when the failure occurs When no fault occurs, the HOB-35 displays a value of 0.	If HOB-34=Er.941 HOB-35=107374182.4 It indicates that the current fault code is 941, and the total servo running time when the fault occurs is 107374182.4s 

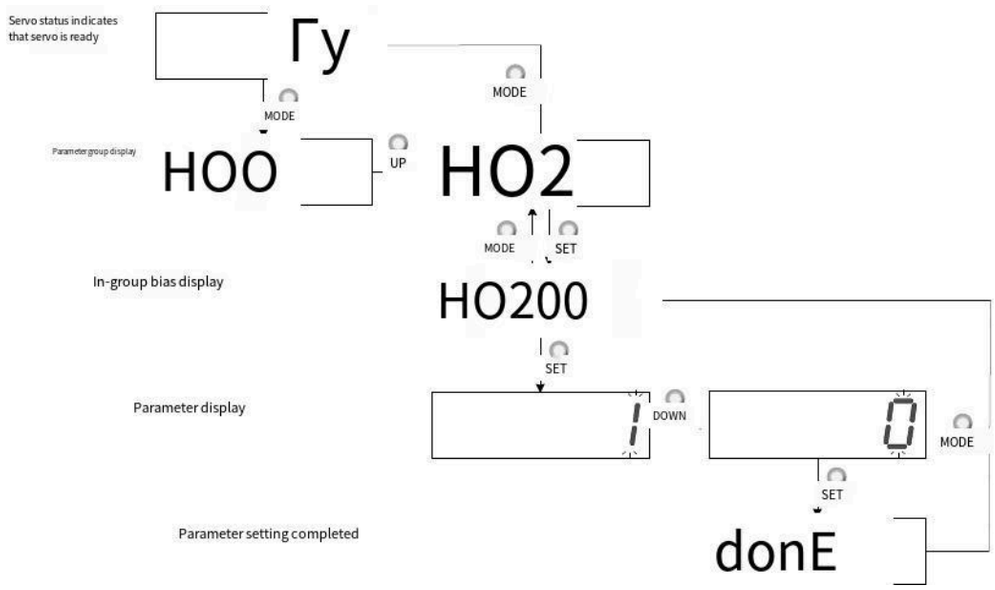
Function code		Name	Units	Denoting meaning	Show examples
Panel side	The background side of the upper computer				
HOB-37	200B-26h	Motor speed at selected fault	rpm	HOB-34 shows the servo motor speed when the fault occurs HOB-37 shows a value of "0" when no fault occurs	3000rpm display: 3000 -3000rpm displays: -3000.
HOB-38	200B-27h	Motor U-phase current at selected fault	0.01A	HOB-34 shows the effective value of U-phase winding current of the servo motor when the fault occurs HOB-38 display value "0" when no fault occurs	4.60A display: 0460
HOB-39	200B-28h	Motor V phase current at selected fault	0.01A	HOB-34 shows the effective value of the current in the V phase winding of the servo motor when the fault occurs HOB-39 display value "0" when no fault occurs	4.60A display: 0460
HOB-40	200B-29h	Bus voltage at selected fault	V	The HOB-34 shows that the fault occurs when the main loop is straight Current bus voltage HOB-40 shows a value of "0" when no fault occurs	After AC220V rectification: 311.0V Display: 0310 After AC380V rectification: 537.0V Display: 05310
HOB-41	200B-2Ah	Enter the terminal status when the fault is selected	-	HOB-34 shows that the failure occurred when 8 DI The corresponding high and low level status of the terminal The method of viewing is the same as for HOB-03 HOB-41 shows all DI when no fault occurs Terminals are low and correspond to decimal values of "0"	HOB-41=431 Shows:  Note: 620N without DI7.
HOB-42	200B-2Bh	Output terminal status when the fault is selected	-	The HOB-34 shows when the failure occurs, 3 DO The corresponding high and low level status of the terminal The method of viewing is the same as for HOB-05 When no fault occurs HOB-42 displays all DO terminals as low, corresponding decimal value of "0"	HOB-42-3 shows: 

Function code		Name	Units	Denoting meaning	Show examples
Panel side	The background side of the upper computer				
HOB-53	200B-36h	Position deviation counter Instruction sheet (32-bit decimal bit display)		Position deviation = Total number of input position instructions (instruction units) Total number of encoder feedback pulses (instruction units)	10000 instruction unit display: 
HOB-55	200B-38h	Actual motor speed	0.1rpm	Servo motor actual running speed, can be accurate to 0.1rpm	3000.Orpm displays:  3000.0 RPM 
HOB-57	200B-3Ah	Control the voltage of the electric bus	0.1V	Control the DC bus voltage of the main circuit.	After AC220V rectification: 311.0V Display: 0310 After AC380V rectification: 537.0V Display: 05310

Function code		Name	Units	Denoting meaning	Show examples
Panel side	The background side of the upper computer				
HOB-58	200B-3Bh	Mechanical absolute position (low 32 bits)	Encoder unit	Display of mechanical absolute position (low 32 bits) when using absolute encoder	Example: -2147483648 encoder unit 
HOB-60	200B-3Dh	Mechanical absolute position (high 32 bits)	Encoder unit	Displays the mechanical absolute position (high 32 bits) when using an absolute encoder.	Example: -1 encoder unit 
HOB-64	200B-41h	Enter the position instruction counter in real time	Instruction unit	Display the position instruction counter before the electronic gear ratio is doubled, and has nothing to do with the current state and control mode of the servo.	1073741824 instruction units are displayed: 
HOB-70	200B-47h	Absolute number of encoder revolutions	r	Displays the absolute value of the current number of encoder revolutions.	Example: 32767r 

Function code		Name	Units	Denoting meaning	Show examples
Panel side	The background side of the upper computer				
HOB-71	200B-48h	Absolute encoder single-turn position feedback	Encoder unit	Display absolute value encoder's single-turn position feedback.	Example: 8388607 encoder unit 
HOB-77	200B-4Eh	The absolute encoder position is 32 bits lower	Encoder unit	Display motor absolute position (low 32 bits) when using absolute encoder	Example: -2147483648 encoder units 
HOB-79	200B-50h	Absolute encoder position 32 bits higher	Encoder unit	Display motor absolute position (low 32 bits) when using absolute encoder	Example: -1 encoder unit 
HOB-81	200B-52h	Rotary load single-turn encoder position feedback low 32 unit bits		Absolute value system operating in rotation mode when the display machine Machine load position feedback (low 32 bits)	Example: -2147483648 encoder units 
HOB-83	200B-54h	Rotating load position feedback is 32 bits higher per turn	Encoder unit	Absolute value Displays mechanical load position feedback (high 32 bits) when the system is operating in rotation mode	For example, -1 encoder unit 

Function code		Name	Units	Denoting meaning	Show examples
Panel side	The background side of the upper computer				
HOB-85	200B-56h	Rotating load one turn command unit set		Absolute value Indicates the absolute position of the machine when the system is operating in rotation mode	Example: 1073741824 instruction unit 



4
to
5

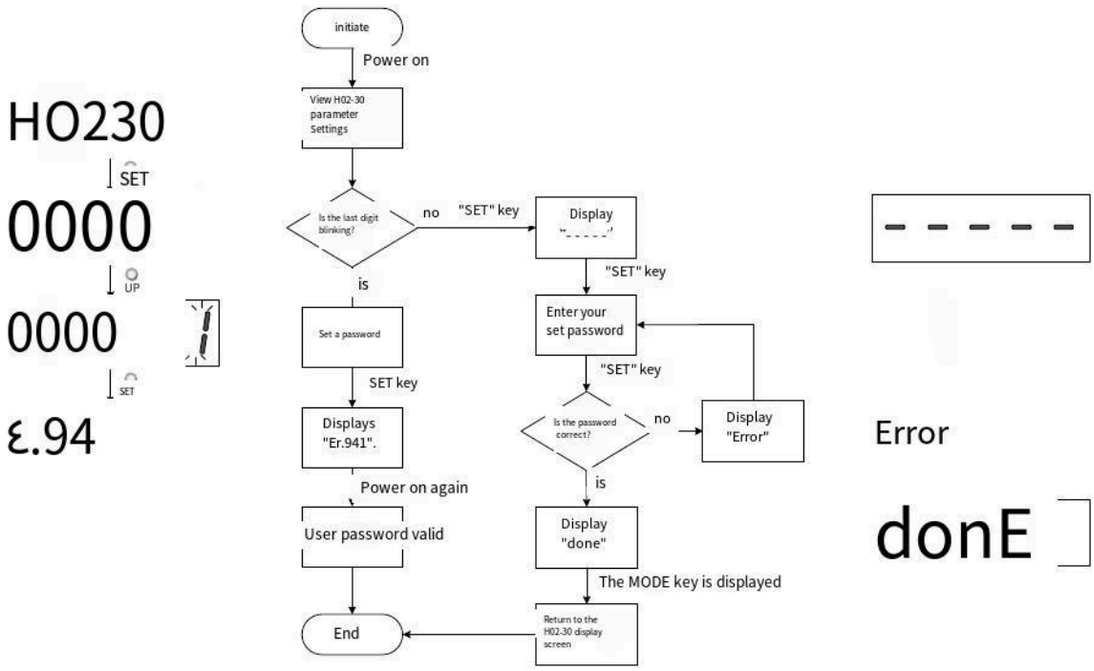
MODE UP /
DOWN SHIFT
SET

MODE
(
Done
H02-00
)

(H02-30)

1

00001



4
to
6

H02-30

NOTE

◆ Note *1: The last digit does not blink, indicating that the current password protection state; If the last digit blinks, it indicates that the password has not been set or the password has been entered correctly.

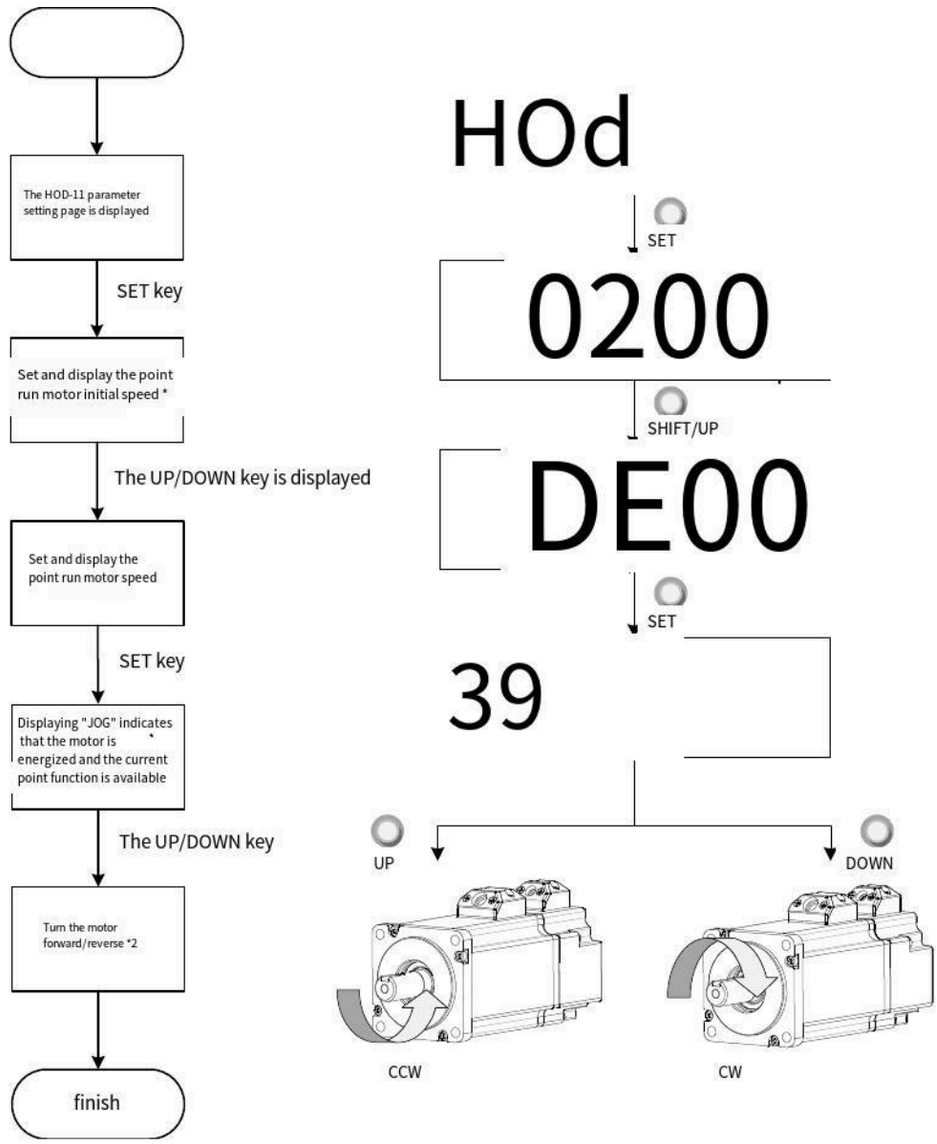
2） User password cancellation

H02-30 00000

Look out

◀ When using the point run function, the servo enable signal (S-ON) must be set to invalid, otherwise it cannot be executed!

1



4
to
7

NOTE

- Note *1: Use the "UP "or "DOWN" key to increase or decrease the motor speed of this point operation, exit the point operation function to restore the initial speed;
- Note *2: Press the "UP" or "DOWN "key, the servo motor will rotate in the positive direction or the opposite direction, release the key, the servo motor will stop running immediately.

2

MODE

(Digital Input Signal DI), (Digital Output Signal DO) () DI/DO H03/H04

DI

DO

DI/DO DI DI

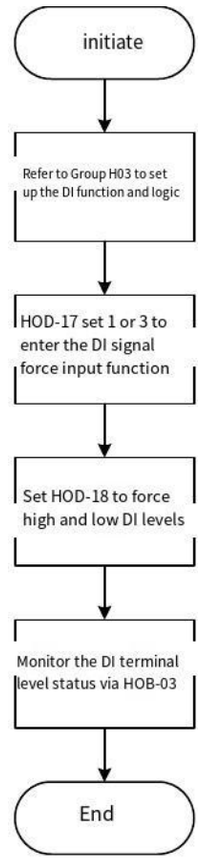
DO DO

DI DI

1 DI

DI (H0D-18) DI

a



4-8 DI

Panel side	Function code Upper computer background 侧	Name	Set range	Features	The setting takes effect out of mode time	Settings
HOD-17	200D-12h	DIDO force a loss Enable input-output	0- No action 1- Force DI to enable and force DO to disable 2- Force DO to be enabled, force DI to be disabled 3- Force DIDO to be enabled	DIDO forces I/O enable operation selection	Run immediate Settings to take effect	0

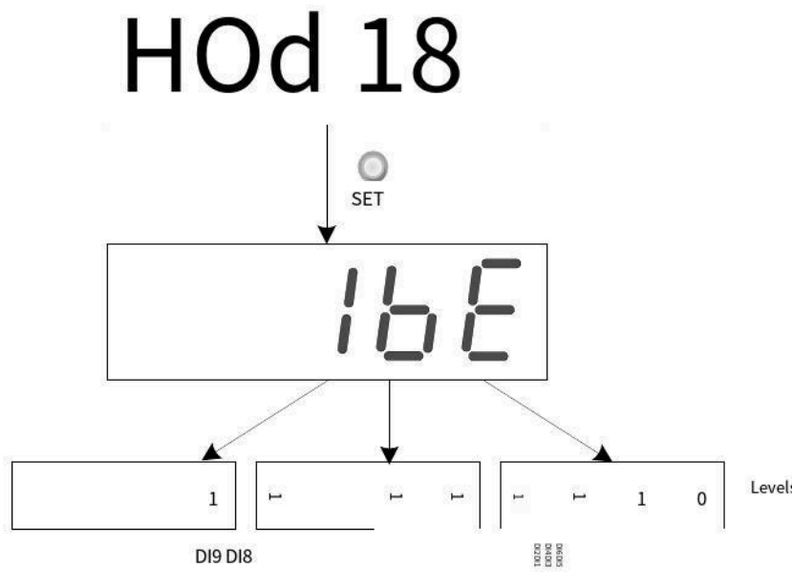
H0D-18 DI

1 0

H03 DI H0B-03 DI H0B-03

DI1 DI DI2 DI9 DI (8 DI)

1 0 111111110 1BE H0D-18 1BE

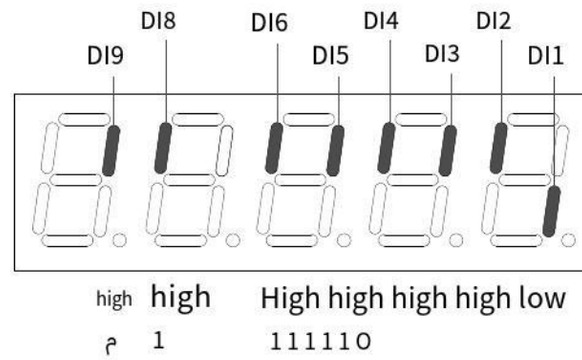


4-9 H0D-18

H0B-03 DI

DI H0B-03 H0D-18

DI1 DI2 DI9 H0B-03 510( )



4-10 H0B-03 DI

b

DI

DI H0D-17=0 DI

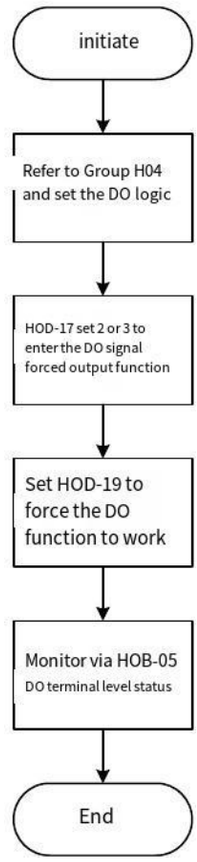
2 DO

DO (H0D-19) DO

warn

If the servo motor is used in vertical motion, when the lock output signal (DO function 9: BK) is set to active, the lock will open and the load may fall. Therefore, mechanical protection measures should be taken to prevent falling.

a



4-11 DO

H0D-19 DO

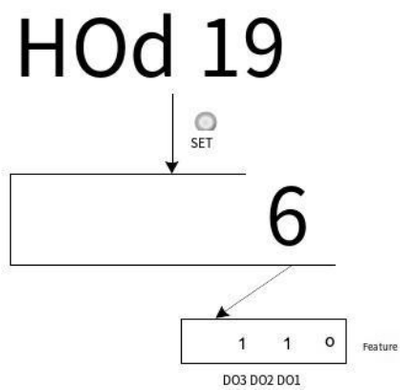
1 DO

0 DO

H04 DO H0B-05 DO H0B-05

DO1 DO DO2 DO3 DO

1 DO 0 DO 110 6 H0D-19 6



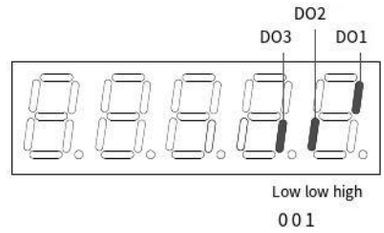
4-12 H0D-19

H0B-05 DO

3 DO

DO1 DO2 DO3

001 H0B-05 1( )

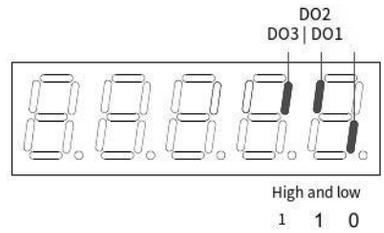


4-13 DO H0B-05

3 DO

DO1 DO2 DO3

110 H0B-05 6( )



4-14 DO H0B-05

b

DO

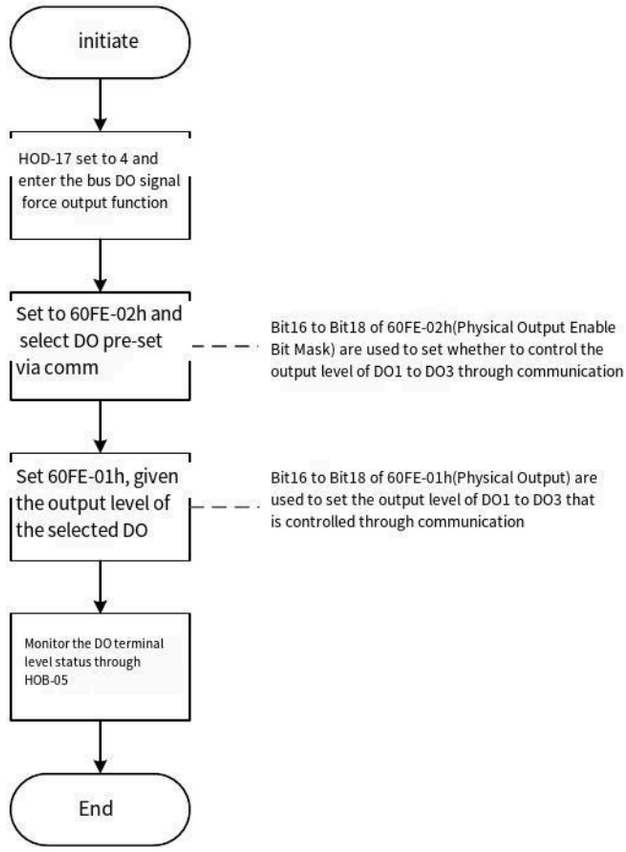
DO H0D-17=0 DO

3 DO

DO 60FE-01h (Physical Output) DO

warn	
	◆ If the servo motor is used in vertical motion, when the lock output signal (DO function 9: BK) is set to active, the lock will open and the load may fall. Therefore, mechanical protection measures should be taken to prevent falling.

a



4-15 DO out

200D-12h=4 60FE(Digital Output) DO DO

Bit	Related DO	Physical Output Enable: 60FE-02h	Physical output: 60FE-01h
16	DO1	1: DO1 Forcible output is enabled	DO1 Force output (0: OFF, 1: ON)
17	DO2	1: DO2 forcible output is enabled	DO2 Force output (0: OFF, 1: ON)
18	DO3	1: indicates that DO3 forced output is enabled	DO3 Force output (0: OFF, 1: ON)

200D-12h=4 60FE-02h Bit16 Bit18 1 DO OFF

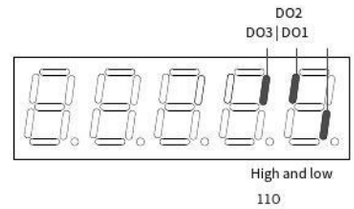
NOTE

H0B-05 DO

H0B-05

DO1 DO3 DO1 DO2 DO3

200D-12h=4 60FE-02h 0x00070000,60FE-01 0x00060000 H0B-05 DO



4-16 DO H0B-05

b

DO

DO H0D-17=0

DO

Servo Drive newsletter

EtherCAT .....

....

EtherCAT .....

EtherCAT

....

....

....

PDO .....

SDO .....

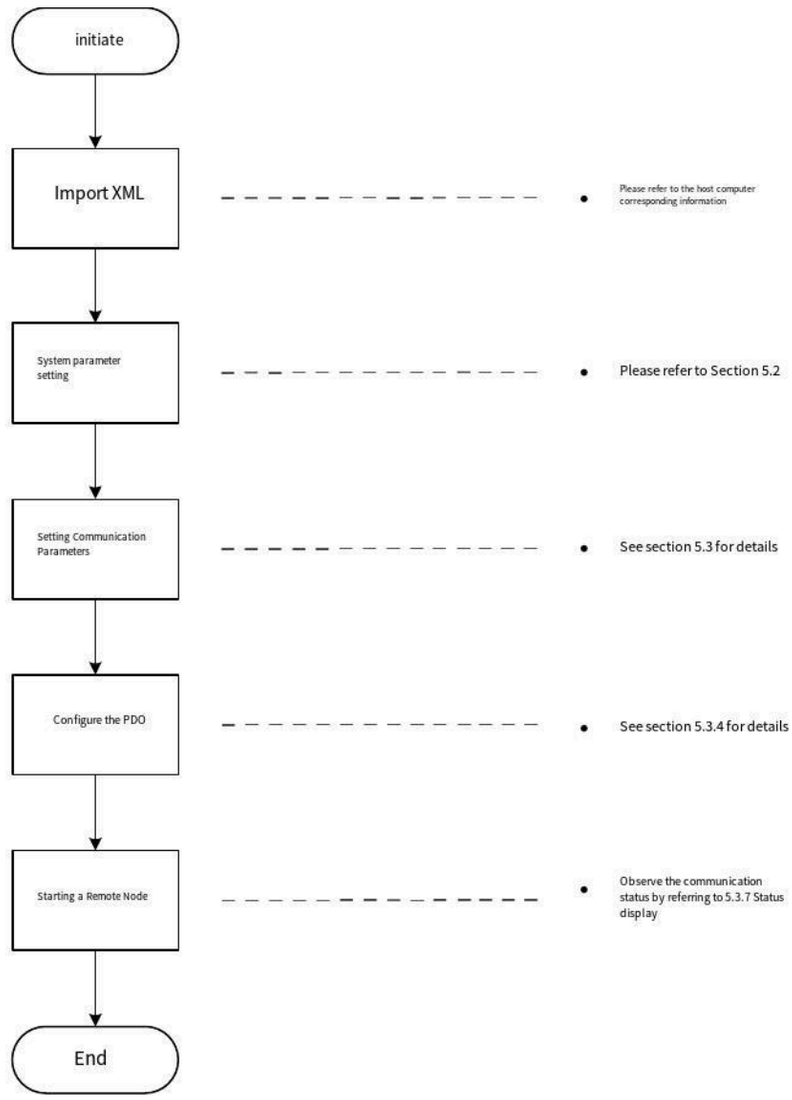
....

....

CiA402

....

....


initiate
Import XML
Please refer to the host computer corresponding information
System parameter setting
Please refer to Section 5.2
Setting Communication Parameters
See section 5.3 for details
Configure the PDO
See section 5.3.4 for details
Starting a Remote Node
Observe the communication status by referring to 5.3.7 Status display
End

5-1 EtherCAT

5.1 EtherCAT

EtherCAT,,,

I/O

(100Base-TX 100Base-FX)

EtherCAT, ET1100,
ET1200, FPGA

EtherCAT I/O

-

-

-

- :

2 x 100 Mbit/s ,

- 300 120 1us -

256 I/O 11 s

100 1000 I/O 30 s = 0.03 ms

200 I/O (16 bit) 50 s, 20 kHz

100 8 Byte IN+OUT 100 s = 0.1ms 12000 I/O 350 s

EtherCAT

-CoE EtherCAT CAN

-SoE IEC 61800-7-204

-EoE EtherCAT

-FoE EtherCAT

5.2

EtherCAT

Object dictionary Name index	Object dictionary Subindex		Set range	Default
2002	01h	Control mode selection	0: Speed mode 1: Position mode 2: Torque mode 3: Speed mode - Torque mode 4: Position mode - Speed mode 5: Position mode - torque mode 6: Position mode - Speed - Torque hybrid mode 7: Absolute Position system mode 8: CANopen mode 9: EtherCAT mode	9
200C	ODh	EtherCAT communication changes whether parameters are stored to EEPROM	1: Do not save 2: Save the 2XXXh series function code 3: Save the 6XXXh series parameters 4: Save all parameters	3

EEPROM 200C-0Dh

5.3 EtherCAT

5.3.1 EtherCAT

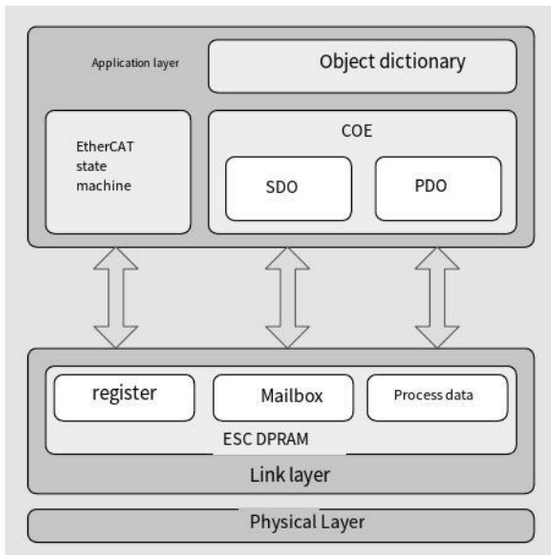
item		Specifications
Communication protocol		IEC 61158 Type 12, IEC 61800-7 CiA 402 Drive Profile
Application layer	SDO	SDO request, SDO reply
	PDO	Variable PDO mapping
	CiA402	Contour Position Pattern (pp) Profile Speed Mode (pv) Profile Torque Mode (pt) Origin reversion mode (hm) Synchronous Cycle Position Mode (csp) Synchronous Cycle Velocity Mode (csv) Synchronous Cycle Torque Mode (cst)
Physical layer	Transmission protocol	100BASE-TX (IEEE802.3)
	Maximum distance	100M
	port	RJ45*2 (INT、OUT)

5.3.2

EtherCAT

KS100-E IEC 61800-7 (CiA 402) CANOpen

CANOpen EtherCAT



5-3 CANOpen EtherCAT

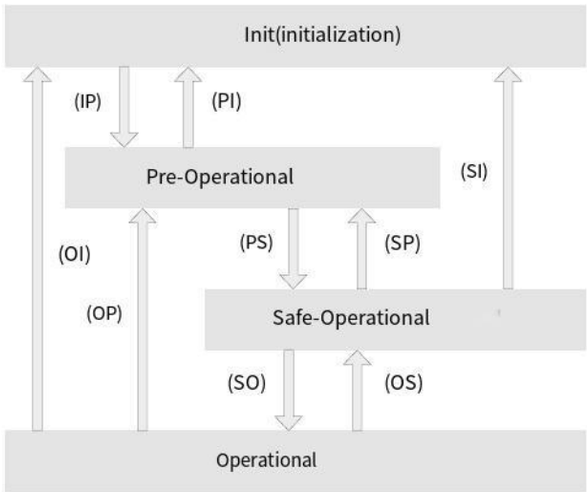
, PDO PDO

SDO

, PDO

5.3.3

EtherCAT



5-4 ETherCAT

EtherCAT 4

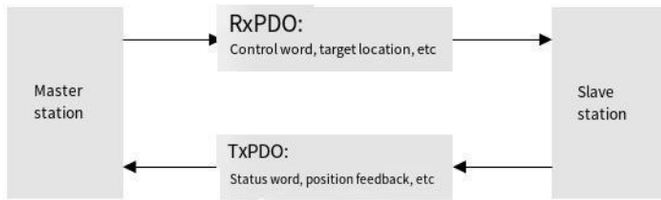
Init I Pre-Operational P Safe- Operational
S Operational O

State and state transitions	Operations
Initialization (1)	Application layer no communication, master station can only read and write ESC registers
IP	The master station configures the address of the slave station; Configure mailbox channel; Configure the DC distributed clock. Request "pre-run" status.
Pre-run (P)	Application Layer Mailbox Data Communication (SDO)
PS	The master uses mailbox initialization process data mapping; The SM channel used by the master station for configuring process data communication; The master station is configured with FMMU. Request "Security status".
There is process data communication, but only the input data is allowed to be read, no output signal is generated safe operation (S)	(SDO、 TPDO)
SO	The master station sends valid output data; To request "running status".
Input and output are all valid; Running status (0)	Mail can still be used for communication. (SDO、 TPDO, RPDO)

5.3.4 DO

PDO - PDO RPDO(Reception PDO) RPDO

TPDO(Trasmission PDO) TPDO



1 PDO

PDO PDO 1600h 17FFh RPDO 1A00h 1BFFh TPDO bus

6 RPDO 5 TPDO

RPDO (6)	1600h	Variable mapping
	1701h~1705h	Fixed mapping
TPDO (5)	1A00h	Variable mapping
	1B01h~0x1B04h	Fixed mapping

a PDO

Servo 5 RPDO 4 TPDO

RPDO TPDO

Servomode is available	PP CSP
1701h (RPDO258)	Mapping object (3 8-byte)
	6040h (control word)
	607Ah (target position)
	60B8h (probe function)
1B01h (TPDO258)	Mapping objects (8 of 24 bytes)
	603Fh(error code)
	6041h (Status word)
	6064h(Position feedback)
	6077h (torque feedback) 60F4 (position deviation)
	60B9 (probe state)
	60BA(Probe 1 rising edge position feedback)
	60FD(DI status)

Servo mode can be used	PP PV PT CSP CSV CST
1702h (RPDO259)	Mapping object (7 19 bytes
	6040h (control word)
	607Ah(target position)
	60FFh (target speed)
	6071h (target torque)
	6060h (mode selection) 60B8h (probe function)
	607Fh (Max RPM)

Servomode is available	PP PV PT CSP CSV CST
1B02h (TPDO259)	Mapping object (9 25 bytes) 603Fh (error code) 6041h (Status word) 6064h (Position feedback) 6077h (torque feedback) 60B9(probe state) 6061h(Mode display) 60BA(Probe 1 rising edge position feedback) 60BC(Probe 2 rising edge position feedback) 60FD(DI status)

Servo mode can be used	PP PV CSP CSV
1703h (RPDO260)	Mapping object (7 17 bytes) 6040h (control word) 607Ah (target position) 60FFh(target speed) 6060h(Mode selection) 60B8h(probe function) 60E0h(forward torque limit) 60E1h (negative torque limit)
1B03h (TPDO260)	Mapping objects (10 29 bytes) 603Fh(error code) 6041h(Status word) 6064h (Position feedback) 6077h (Torque feedback) 60F4 (Position deviation) 6061h(Mode display) 60B9(Probe state) 60BA(Probe 1 rising edge position feedback) 60BC(Probe 2 rising edge position feedback) 60FD(DI status)

Servo mode can be used	PP PV PT CSP CSV CST
1704h (RPDO261)	Mapping object (9 23 bytes) 6040h (control word) 607Ah (target position) 60FFh (target speed) 6071h(target torque)6060h(mode selection)60B8h (probe function) 607Fh (maximum speed) 60EOh(forward torque limit) 60E1h (negative torque limit)

Servomode is available	PP PV PT CSP CSV CST
	Mapping object (9 25 bytes)
	603Fh(error code) 6041h(status word) 6064h (position feedback) 1B02h 6077h (Torque Feedback) (TPDO259)
	6061h (mode display) 60B9 (probe state) 60BA(Probe 1 rising edge position feedback)60BC(Probe 2 rising edge position feedback)60FD (DI state)

Servo mode can be used	PP PV CSP CSV
	Mapping object (8 19 bytes)
1705h (RPDO262)	6040h (control word) 607Ah(target position) 60FFh (target speed) 6060h (Mode selection) 60B8h (probe function) 60E0h(forward torque limit) 60E1h (negative torque limit) 60B2h (torque bias)
	Mapping objects (10 29 bytes)
1B04h (TPDO261)	603Fh(error code) 6041h(Status word) 6064h (position feedback) 6077h (torque feedback) 60F4 (position deviation) 6061h (Mode display) 60B9 (Probe state) 60BA(Probe 1 rising edge position feedback) 60BC (Probe 2 rising edge position feedback) 606C (velocity feedback)

b PDO

Servo 1 RPDO 1 TPDO

Variable PDO	Index	Maximum number of maps	Maximum bytes	Default mapping object
RPDO1	1600h	ten	40	6040 (control word) 607A(target position) 60B8(probe function)
TPDO1	1A00h	ten	40	603F (error code) 6041 (status word) 6064(position feedback) 60BC (Probe 2 rising edge position feedback) 60B9(probe status) 60BA(Probe 1 rising edge position feedback) 60FD (DI status)

2 PDO

EtherCAT

PDO CoE 0x1C10

0x1C2F SM() PDO PDO Bus 1 RPDO 1 TPDO

index	Subindex	Content
0x1C12	01h	Select one of 0x1600, 0x1701~0x1705 as the RPDO that is actually used
0x1C13	01h	Select one of 0x1A00, 0x1B01~0x1B04 as the TPDO for actual use

3 PDO

PDO PDO PDO,

0 PDO N PDO 4*N 1 N

digit	31	·····	16	15	·····	8	7	·····	0
Meaning	Index			Subindex			Object length		

Object length	Bit length
08h	8-bit
10h	16-bit
20h	32-bit

16 6040h-00 60400010h

Servo PDO

PDO

① PDO 1C12h(1C13h) 00h 0

00h 0 PDO

PDO

1 10

PDO PDO

0

② PDO 1C12h(1C13h) 00h 1

Give attention to

- The PDO configuration can only be designed when the EtherCAT communication state machine is in pre-operation (panel display 2), otherwise an error is reported.
- PDO configuration parameters cannot be stored in EEPROM, so be sure to reconfigure the mapping object after each power-on, otherwise, the mapping object is the default parameter for the drive
- SDO fault codes are returned when you do the following:
- Modify PDO parameters in a non-prerun state;
- Prewrite values other than 1600/1701~1705 in PDO1C12; Values other than 1A00/1B01~1B04 are pre-written in 1C13.

5.3.5 SDO

EtherCAT SDO

EtherCAT

CoE 1) 2)SDO 3)SDO 4)TxPDO 5)RxPDO 6) TxPDO 7) RxPDO 8)SDO

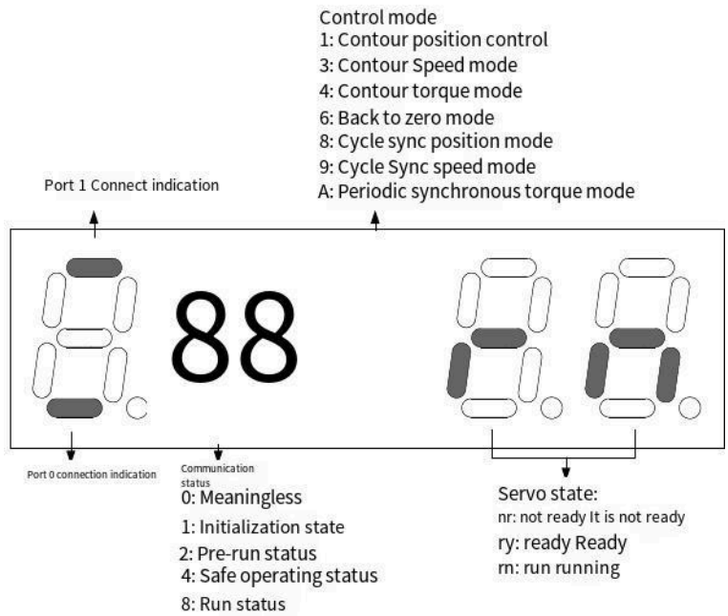
总线 1)SDO 2)SDO

5.3.6

EtherCAT

Bus DC SYNC0

5.3.7



0
H6060
0

NOTE

5 -

1

Servo 5 LED-2 RJ45 - (PORT1) - (PORT0)

2

5 LED 2

EtherCAT

EtherCAT

status	SDO	RPDO	TPDO	Description	Panel display
Initialization	No	No	No	Communication initialization	1, long light
Pre-run	Yes	No	No	SDO can be used to initialize the network configuration	2, flash at 400ms intervals
Run safely	Yes	No	Yes	SDO and TPDO are available, and distributed clock mode is available.	4, flash at 1200ms cycle, light 200ms, dark 1000ms
Run	Yes	Yes	Yes	Normal running status.	8, long light

3

5 LED 3

The servo operation mode displays 6060h	Panel display
1: Outline position mode	1
3: Contour Speed pattern	3
4: Contour torque pattern	4
6: Origin regression mode	6
8: Cycle sync position mode	8
9: Cycle sync speed mode	9
10: Cycle sync torque mode	A

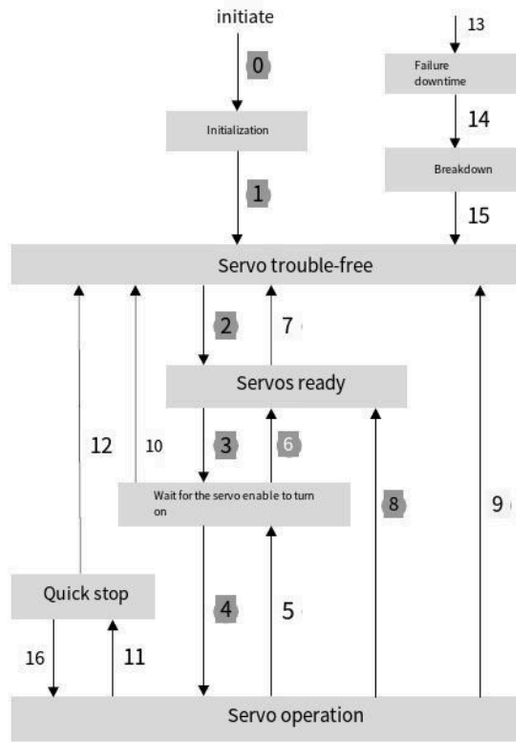
4

5 LED 4 5

status	Description	Panel display
Reset	Initialize	FESEE reset
Not ready	Initialization is complete, control power is on, power power is not Not ready	 nr
Get ready	Power is on, servo enable is invalid Ready	 ry When the motor speed is not 0, the character "y" flashes; When the communication layer is in pre-operation or safe operation mode, the blinking frequency is consistent with the blinking frequency of the character "2" or "4" (see "2) Communication Operating Status" on the previous page); When the communication layer is in initialization or operating mode, the blinking frequency is 2Hz.
operation	Servo enable active, motor powered Run	 rn When the motor speed is not 0, the character "n" flashes; When the communication layer is in pre-operation or safe operation mode, the blinking frequency is consistent with the blinking frequency of the character "2 "or" 4 "(see "2) Communication Operating Status" on the previous page); When the communication layer is in initialization or operating mode, the blinking frequency is 2Hz.

5.3.8 C A402

Bus 402



5-6 CiA402

initialize	Drive initialization, internal self-test is complete. The parameters of the drive cannot be set, and the driver function cannot be performed.
Servo trouble-free	Servo drive no fault or error has been eliminated. Drive parameters can be set.
Servo ready	Servo drive is ready. The drive parameters can be set.
Wait to turn on the servo enable	Wait for the servo drive to turn on the servo enable. Drive parameters can be set.
Servo run	The drive is running normally, a servo operation mode has been enabled, the motor has been powered on, and the motor rotates when the instruction is not 0. Drive parameter attribute "run change" can be set, otherwise can not be set.
Quick stop	The quick stop function is activated and the drive is performing the quick stop function. The drive whose parameter attribute is "Run Change" can be set, otherwise it cannot be set.
Failure stop	The drive has failed and is in the process of performing a failure stop. The drive parameter attribute is "Run change" can be set, otherwise it cannot be set.
Fault	Fault shutdown complete, all drive functions disabled, while allowing change of drive parameters in order to troubleshoot.

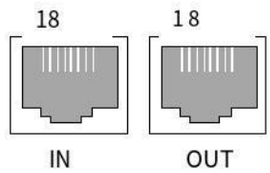
5.3.

1

EtherCAT

(IN) (OUT) IEEE

802.3, ISO 8877

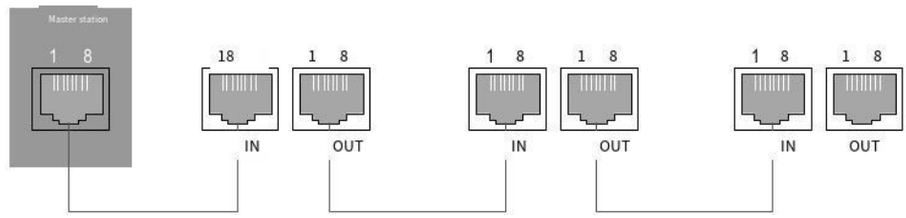


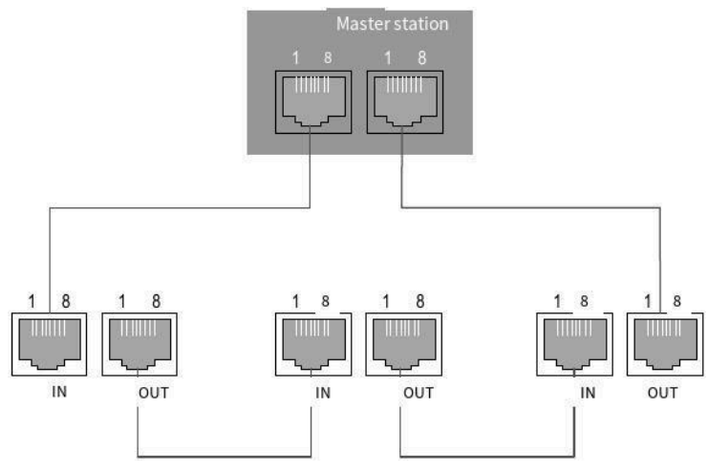
stitch	Definition	Description
1	TX+	Data sending + data sending
2	TX	
3	RX+	Data reception +
4	NULL	Bare foot
5	NULL	Empty feet
6	RX	Data reception
7	NULL	Bare foot
8	NULL	Bare foot

2

EtherCAT

IN, OUT





3

EtherCAT Ethernet Category 5(100BASE-TX)

100M

4 EMC

EMC IEC/EN61800-3: 2004(Adjustable speed electrical power drive systems-- part 3: EMC requirements and speci c test methods) GB/t12668.3

6

6.1
... ... 144

6.2
... ... 169

6.3
... ... 173

6.4
csp
... 175

6.5
csv
... 177

6.6
cst
... 180

6.7
pp
... 182

6.8
pv
... 189

6.9
pt
... 190

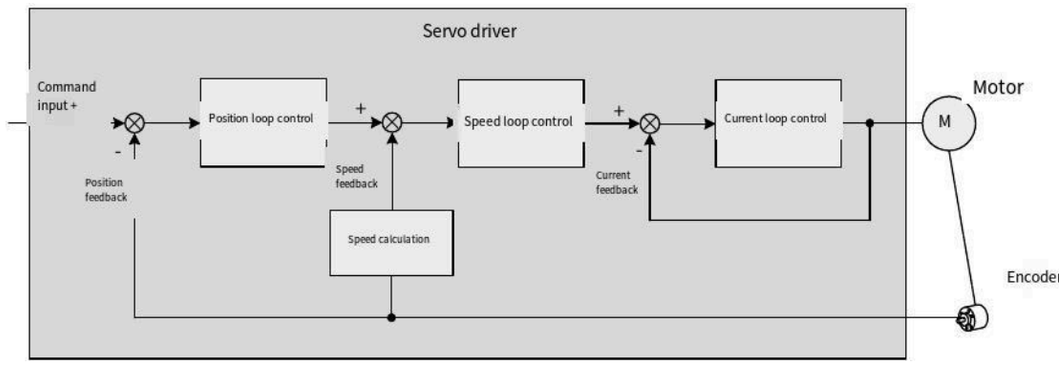
6.10
(hm)..... 193

6.11
... ... 232

6.12
... 239

6.13
... . 245

,


Servo driver
Command input +
Position loop control
Speed loop control
Current loop control
Motor
M
Position feedback
Speed feedback
Current feedback
Speed calculation
Encoder

6-1

,,,

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() ()

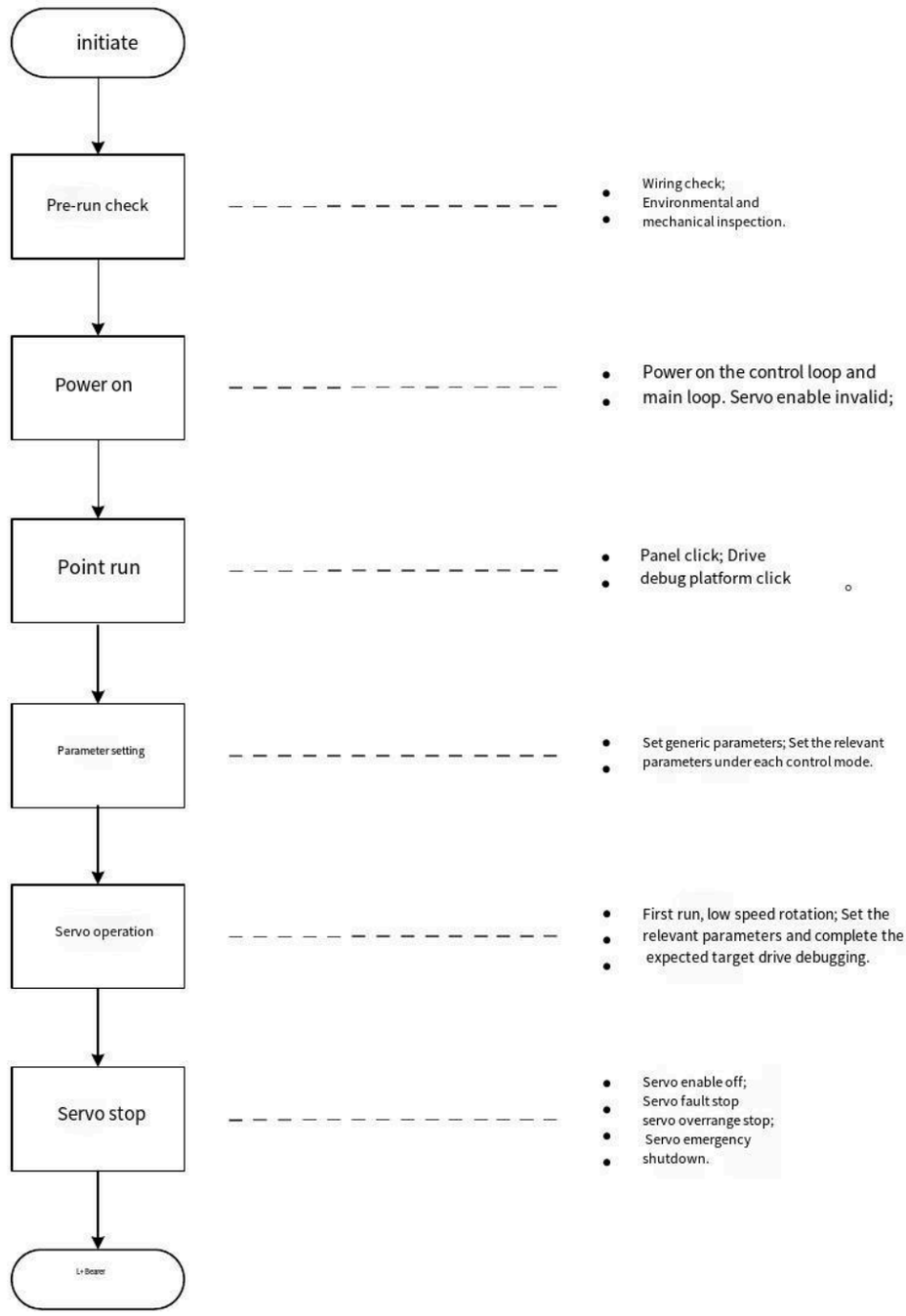
,

,,

(),

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6.1


initiate
Pre-run check
Wiring check;
Environmental and
mechanical inspection.
Power on
Power on the control loop and
main loop. Servo enable invalid;
Point run
Panel click; Drive
debug platform click
Parameter setting
Set generic parameters; Set the relevant
parameters under each control mode.
Servo operation
First run, low speed rotation; Set the
relevant parameters and complete the
expected target drive debugging.
Servo stop
Servo enable off;
Servo fault stop
servo overrange stop;
Servo emergency
shutdown.
L+ Bearer

6.1.1

6-1

Records	Serial number	Contents
		Wiring
☐	1	The control loop power input terminals of the servo drive must be properly connected.
☐	2	The servo driver main loop output terminal (U, V, W) and the servo motor main circuit cable (U, V, W) must be in phase and correctly connected.
☐	3	The main loop power input and main loop output terminals (U, V, W) of the servo drive cannot be short-circuited.
☐	4	The control signal cables of the servo drive are connected correctly: the external signal lines such as lock and over-range protection have been reliably connected.
☐	5	The servo drive and servo motor must be reliably grounded.
☐	6	When using an external brake resistor, the short wiring between the driver P field and D must be removed.
☐	7	The force on all cables is within the specified range.
☐	8	The wiring terminals have been insulated.
		Environment and Machinery
☐	1	There are no foreign bodies such as wire heads and metal shavings inside and outside the servo drive that will cause short circuit of signal lines and power lines.
☐	2	The servo driver and external brake resistance are not placed on combustible objects.
☐	3	The installation, shaft and mechanical connection of the servo motor must be reliable.
☐	4	The servo motor and connected machinery must be in a condition to operate.

6.1.2

1

L1, L2

reset nr ry

nr

2

6.1.3

H06-04(2006-05)

1

H0D-11(200D-0C) H06-04(2006-05)

UP/DOWN SET JOG UP/DOWN

MODE H06-04(2006-05)

2006-05h	name	Click speed setpoint Jog speed setting value			Set effective	Run Settings Effective immediately	Data structure	-	Data type	Uint16
	Accessibility	RW	Can map	-	Related patterns	-	Data range	0-6000. (Units: rpm)	Factory Settings	100

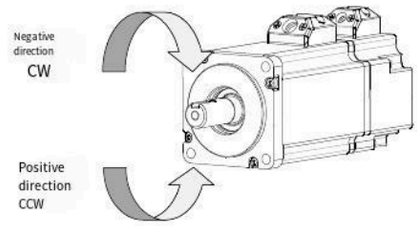
6.1.4

“ (2002-03h)

2002-03h	name	Select Rotating direction			Setting takes effect	Shutdown Settings re-energize	Data structure	-	Data type	Uint16
	accessibility	RW	Can map	-	Related patterns	ALL	Data range	0-1	Factory Settings	0

Set the positive direction of motor rotation when viewed from the motor shaft side.

Set value	Rotation direction	Remarks
0	Take the CCW direction as the positive turn direction	When the forward instruction is given, from the motor shaft side, the motor rotation direction is CCW direction, that is, the motor rotates counterclockwise.
1	Take the CW direction as a positive turn	When the forward instruction, from the motor shaft side, the motor rotation direction is CW direction, that is, the motor rotates clockwise.



(2002-03h),

(2002-03h)

6.1.5

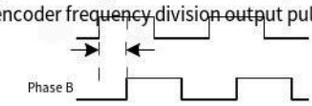
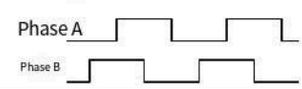
A +B

(2002-04h)

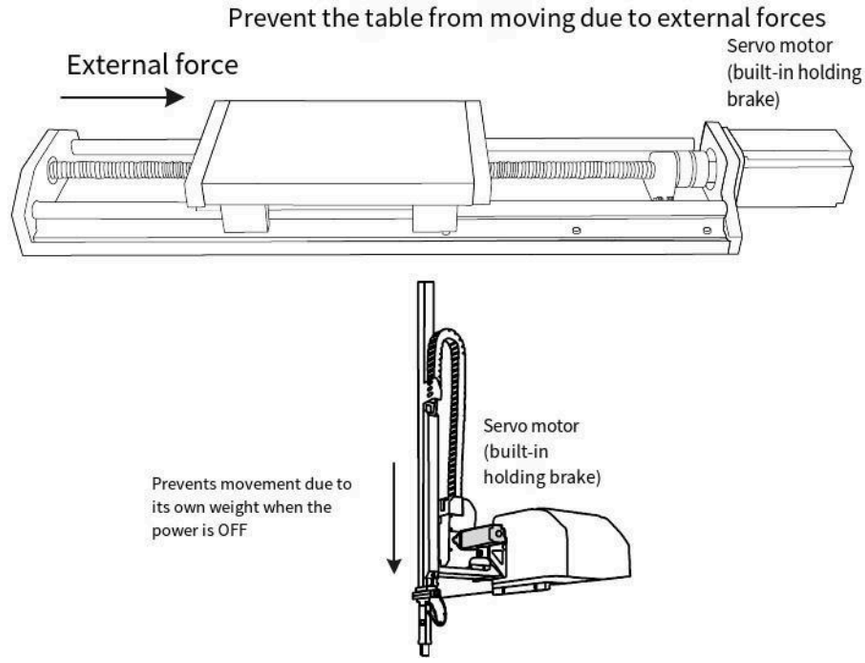
A B

2002-04h	Name	Phase Direction of outputpulse			Set in effect	Shutdown Settings power up again	Data structure	-	Data type	Uint16
	Accessibility	RW	Can map	-	Related patterns	ALL	Data range	0 ~ 1	Factory Settings	0

Set the phase relationship between phase A pulse and phase B pulse when the pulse output function is used and the motor rotation direction is unchanged.

Set Value	Output pulse phase	Remarks
0	A ahead of B	The A phase pulse is 90°A phase ahead of the B phase pulse in the encoder frequency division output pulse 
1	A lags B	The A phase pulse lags behind the B phase pulse by 90° in the encoder frequency division output pulse 

6.1.6

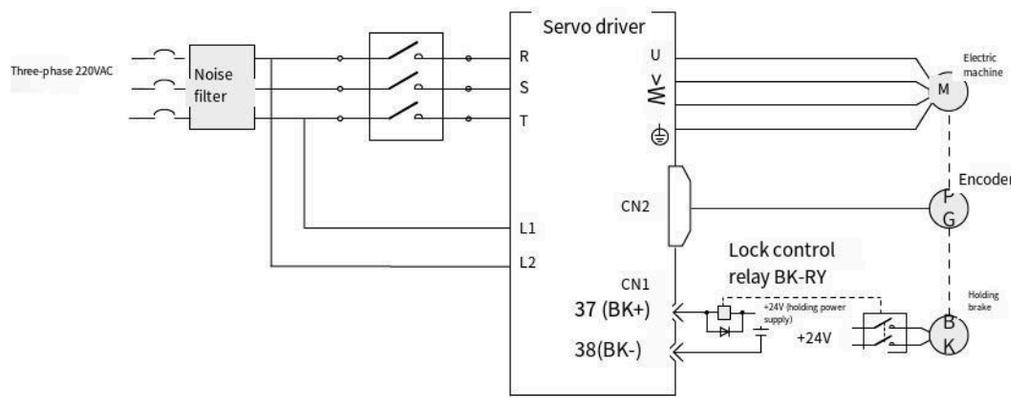


6-3

Look out
◀ The brake holding mechanism built into the servo motor is a non-energized action type fixed special mechanism, which cannot be used for braking purposes, and is only used when the servo motor is kept in a stopped state; ◀ The lock coil has no polarity; ◀ After the servo motor is stopped, the servo enable (S-ON) should be turned off; ◀ When the motor with built-in brake is running, the brake may make a snapping sound, which has no effect on the function; ◀ When the lock coil is energized (the lock is open), magnetic flux leakage may occur in the shaft end and other parts. Be aware when using instruments such as magnetic sensors near the motor.

1

24V BK



6-4

21.6
V

0.5 was

2

1 DO 9(FunOUT.9 BK)

DO

encoding	Name	Feature name	Feature
FunOUT.9	BK	Lock output	Invalid, the holding power is disconnected, the holding action, the motor is in the position locked state; Effective, the lock power supply is connected, the lock is released, and the motor can be rotated;

3

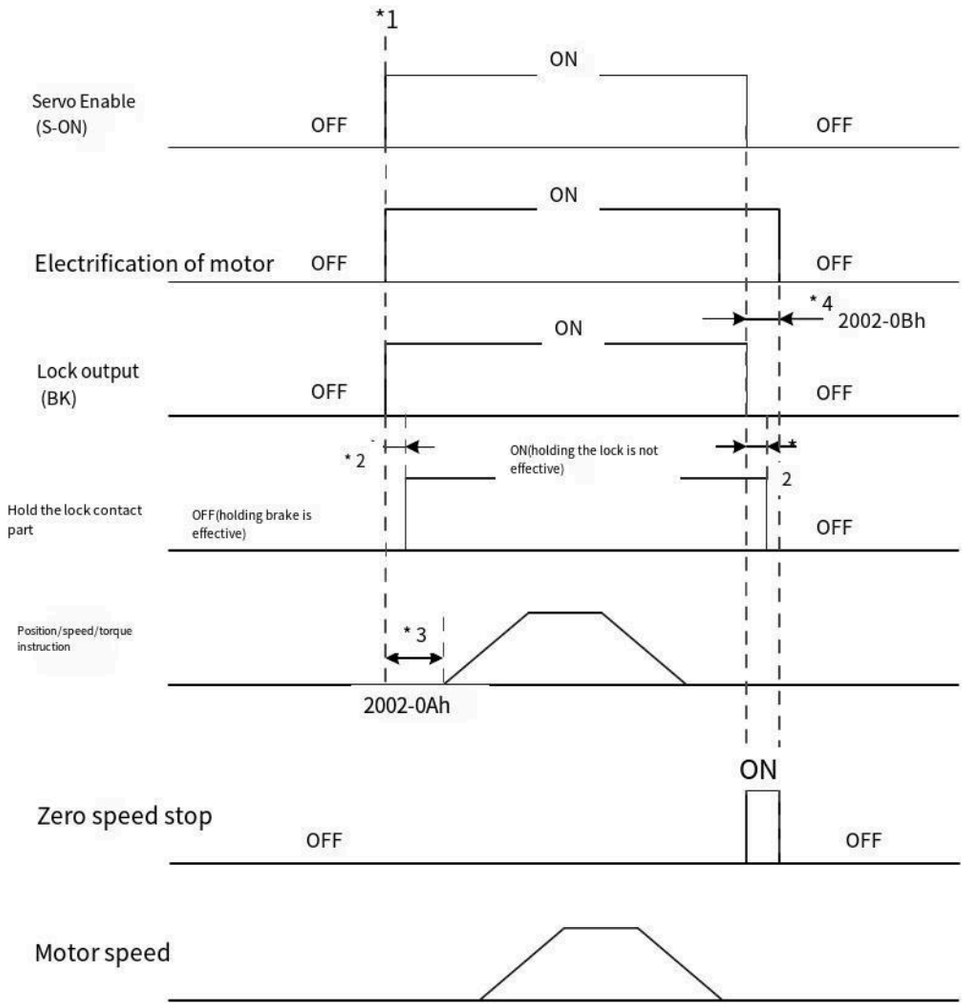
20rpm

20rpm

a

ON OFF 20rpm

Look out	
	◆ After the lock output is set from OFF to ON, during 2002-0Ah time, do not enter position/speed/torque instructions, otherwise it will cause instruction loss or operation error. ◆ When used in vertical axis, the weight or external force of the mechanical motion part may cause the mechanical to move slightly. When the servo motor is stationary, the servo is enabled OFF, and the lock output immediately becomes OFF. But in 2002-0Bh time, the motor is still in the power state to prevent the mechanical moving part from moving due to its own weight or external force.



*1, ON ON *2,

*3, ON 2002-0Ah NOTE *4, (20rpm) OFF OFF

2002-0Bh OFF

2002-0Ah	name	Brake release command delay at setting takes effect. Brake release command delay at setting takes effect servo drive enabled				Run Settings take effect immediately	Data structure	-	Data type factory set	Uint16
	Accessibility	RW	Can map	-	Related patterns	PP/PV/HM/ CSP/CSV	Data range (unit: ms)	0-500.		250

2002-0Bh	Name	Stop state, lock output OFF to motor no power delay Servo drive disable delay at brake apply command			Set effective	Run Settings take effect immediately	Data structure	-	Data type	Uint16
	accessibility	RW	Can map	-	Related patterns	PP/PV/PT/ HM/CSP/ CSV/CST	Data range (in ms)	1-1000	Factory 150 Settings	

b

ON OFF 20rpm

Look out
◀ When the servo enable is set from OFF to ON, do not enter the position/speed/torque instruction during 2002-0Ah time, otherwise it will cause the instruction to be lost or run incorrectly; ◀ When the servo motor rotates, the servo enable OFF occurs, and the servo motor enters the zero speed stop state, but the lock output needs to meet any of the following conditions before it is set to OFF.

1.

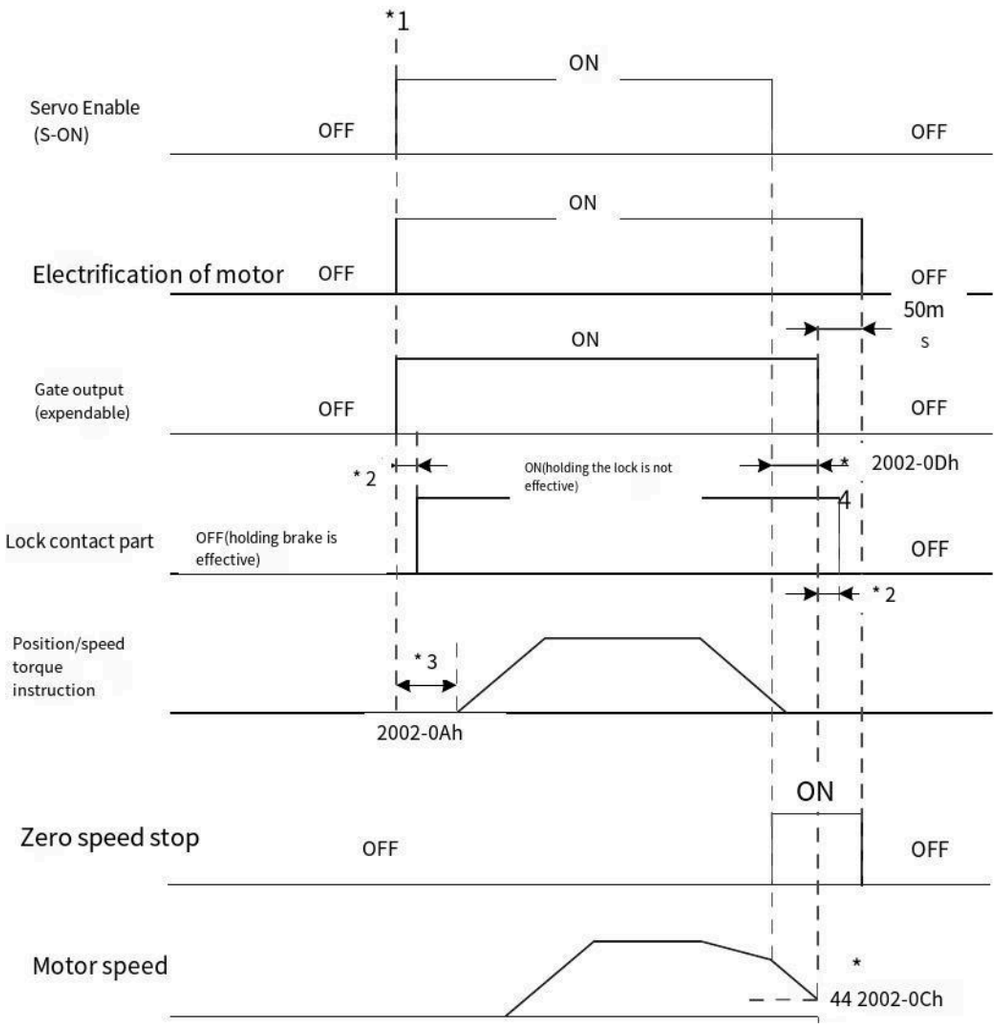
2002-0Dh

2002-0Ch

2
0
0
2
-
0
C
h

2.

ON OFF 50ms



NOTE

*1. ON ON

*2, on.

*3, ON 2002-0Ah

*4, OFF 2002-0Ch 2002-0Dh OFF OFF OFF OFF 50ms

2002-0Ch c	Name	Rotating state, the speed threshold when the lock output is OFF Output speed limit of brake reference			Set effective	Run setting Effective immediately	Data Structure	-	Data type	Uint16
	Accessibility	RW	Can map	-	Related patterns	PP/PV/PT/ HM/CSP/ CSV/CST	data Radius	0 ~ 3000 Unit: rpm)	Factory Settings	30

2002-0Dh ① 1	Name	Rotation state, servo enable OFF to lock output OFF delay Waiting time from servo disable signal to brake apply command			Set effective	Run Settings Effective immediately	Data structure	-	Data type	Uint16
	DO accessibility	RW	Can map	OFF -	Related patterns	PP/PV/PT/ HM/CSP/ CSV/CST	1-1000 data (ms) Radius	(Unit:	Factory Settings	500

1 (NO.1) 2 (NO.2) 2

2002-0Dh 2002-0Ch

2002-0Dh 2002-0Ch ② 2

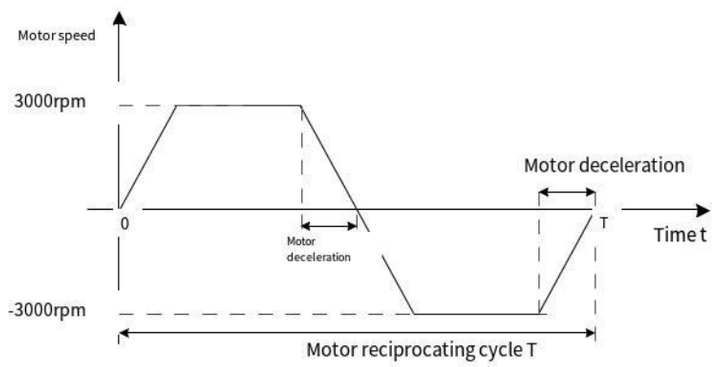
2
2

20rpm DO OFF 2002-0Bh

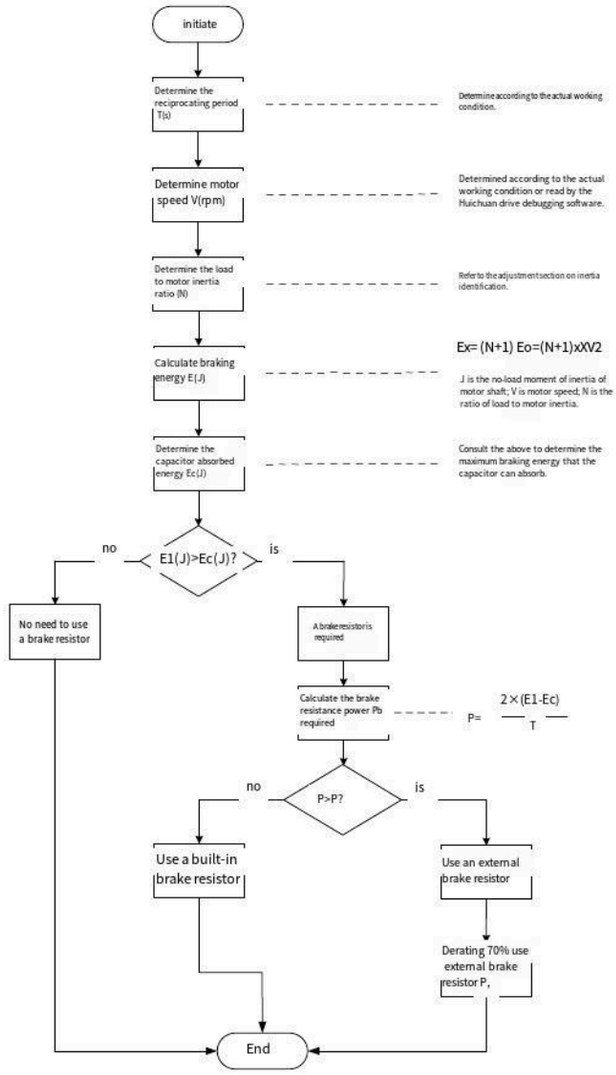
6.1.7

1

3000rpm



b



6-8

-

1

NOTE

N 3000rpm 0 E_1 E_c E_1-E_c T 2 [E_1-E_c /T

2002-1Ah

2002-1Ah	name	Brake resistance setting braking resistor type			Set effective	Stop setting Effective immediately	Data structure	-	Data type	Uint16
	accessibility	RW	Can map	-	Related patterns	-	Data range	0 ~ 3	Factory Settings	0

750W T=2s 3000rpm 4

P_a=25W

$$P_b = \frac{2\times[E_1-E_C]}{T} = \frac{2\times[(4+1)\times 10.06-26]}{2} = 24W$$

4 10

$$P_b = \frac{2\times[E_1-E_C]}{T} = \frac{2\times[(10+1)\times 10.06-26]}{2} = 84W$$

P_a=25W

$P_r/(1-$

70)=148W

c

1.

70 $Pr=P_b$

/
(
1
-
7
0
)

P + C P + D

2002-1Ah
1
2

2002-1Ah 1 2

2002-16h	name	The minimum brake resistance allowed by the drive Allowed minimum braking resistance			Set effective	-	Data structure	-	Data type	Uint16
	accessibility	RO	Can map	-	Related patterns	-	Data range	1-1000	Factory Settings	-

2002-1Bh	name	External brake resistance power Power of external dynamic resistor			Setting in effect	Shutdown Settings take effect immediately	Data structure	-	Data type	Uint16
	Accessibility	RW	Can map	-	Related patterns	-	Data range	1 to 65535(in W)	Factory Settings	40

: (2002-1Bh) No Gong Gong Gong

2002-1Ch	name	Resistance value of external brake resistor Resistance of external braking resistor		Set in effect	The shutdown setting takes effect immediately	Data structure	-	Data type	Uint16
	accessibility	RW	Can map	-	Related patterns	-	Data range	1-1000 50(unit: Ω)	Factory setting	

This parameter is used to set the resistance value of the external brake resistor of a certain type of drive.

When "Maximum braking Energy Calculated value" > "Maximum braking energy absorbed by the capacitor" and "Braking Power Calculated value" > "Internal braking resistance power" are used, you need to use an external braking resistor.

2002-1Ch(external brake resistance value) is too large, will occur Er.920(brake resistance overload) or Er.410(main circuit undervoltage).

If the value of 2002-1Ch (external brake resistance) is less than 2002-16h(the minimum brake resistance allowed by the driver), Er.922(external brake resistance is too small) will occur, if continued use will damage the driver.

External brake resistance and internal brake resistance cannot be used at the same time! When using the external brake resistor, remove the short splice between the terminals "P and" D "and connect the ends of the brake resistor to" P④ "and" C "respectively.

(2002-1Ch) (2002-1Bh)

()

120

()

2002-19h	name	Heat dissipation coefficient of resistance Resistor heat dissipation coefficient		Set effective	The shutdown setting takes effect immediately	Data structure	-	Data type	Uint16
	accessibility	RW	Can map	-	Related patterns	-	Data range	10-100(in %)	Factory Settings	30

Set the heat dissipation coefficient of the resistor when using the brake resistor, which is valid for both built-in and external brake resistors.

Please set 2002-19h(resistance heat dissipation coefficient) according to the actual heat dissipation condition of the resistor.

Recommended values:

Under normal circumstances, when cooling naturally, 2002-19h (resistance heat dissipation coefficient) does not exceed 30%;

When forced air cooling, 2002-19h (resistance heat dissipation coefficient) is not more than 50%.



NOTE

2.

P_s<P_a E , E_c 2002-1Ah 0

P + D

2002-17h	Name	Built-in brake resistance power power Power of built-in braking resistor			Set effective	-	Data structure	-	Data type	Uint16
	accessibility	RO	Can map	-	Related patterns	-	Data range	1-65535	Factory Settings	-

2002-18h	name	Built-in brake resistor resistance value Resistance of built-in braking resistor			Setting in effect	-	Data structure	-	Data type	Uint16
	accessibility	RO	Can map	-	Related patterns	-	Data range	1-1000	Factory Settings	-

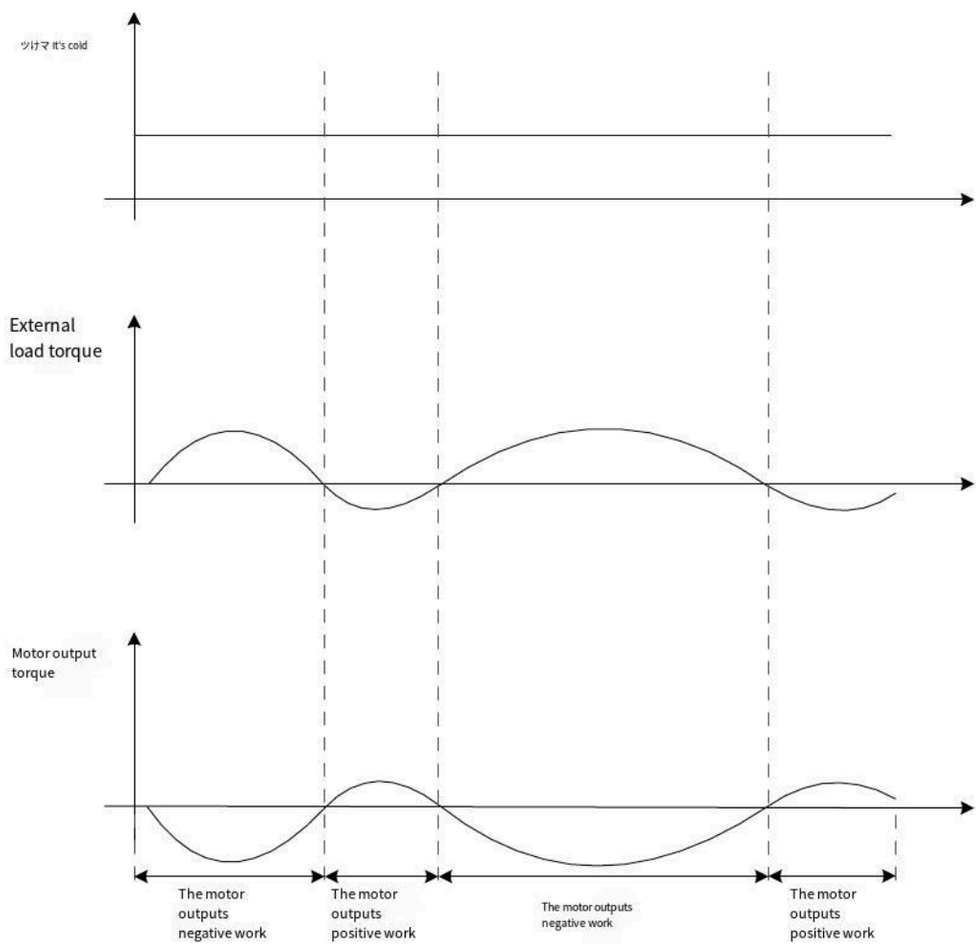
Work Ten

d

$E_i < E_c$

2002-1Ah 3

2



6 to 11

H1 750W(2.39Nm) 60 1500rpm

(60 2.39) (1500 2/60)=225W 70 225/(1-70)=750W 50

6.1.8

1

rn

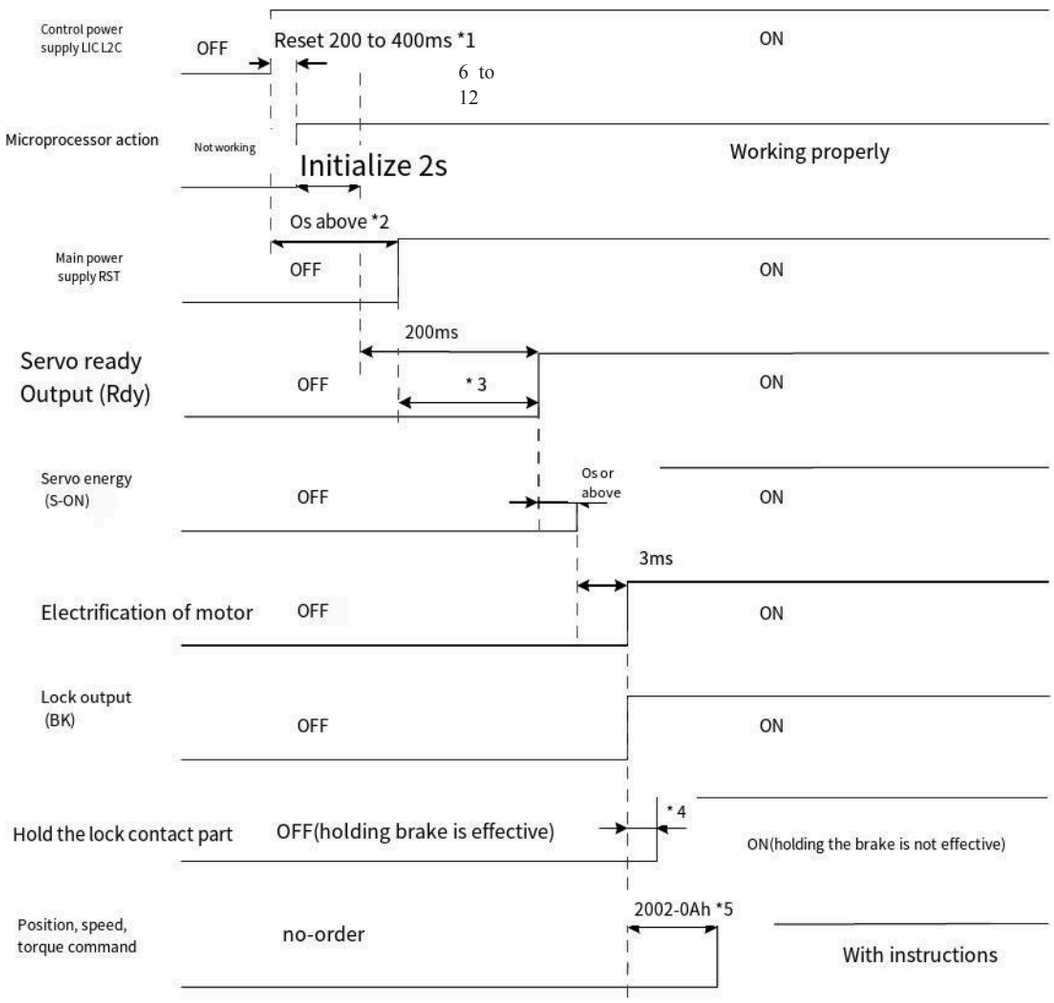
6060h 0

2

6-4

Records	Serial number	Contents
☐	1	When running for the first time, appropriate instructions should be set to make the motor rotate at a low speed and confirm whether the motor rotation is correct. optimum
☐	2	Observe whether the motor rotation direction is correct. If it is found that the motor turns contrary to the expected, please check the input command signal and the command direction setting signal.
☐	3	If the motor rotation direction is correct, use the driver panel or Huichuan drive debugging platform to observe the actual speed of the motor 200B-01h, average load rate 200B-ODh and other parameters.
☐	4	After the operation of the above motor is checked, the relevant parameters can be adjusted to make the motor work in the expected condition.
☐	5	Servo drive for debugging.

3



*1 +5V

*2 0s *3

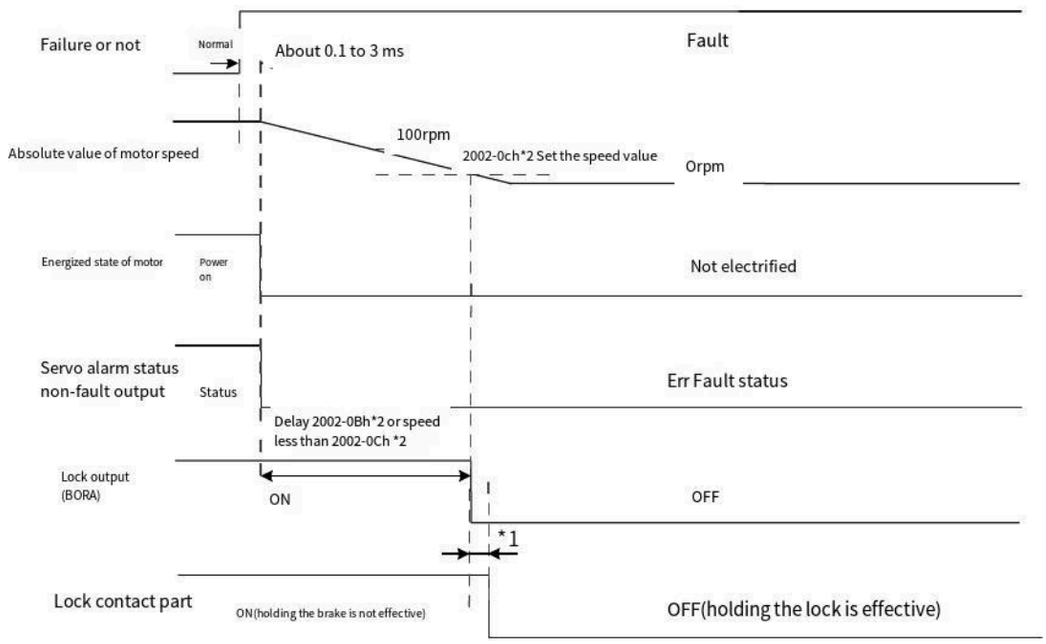
Rdy

NOTE *4

*5 DO 9(FunOUT.9 BK) 2002-0Ah

4

a 1



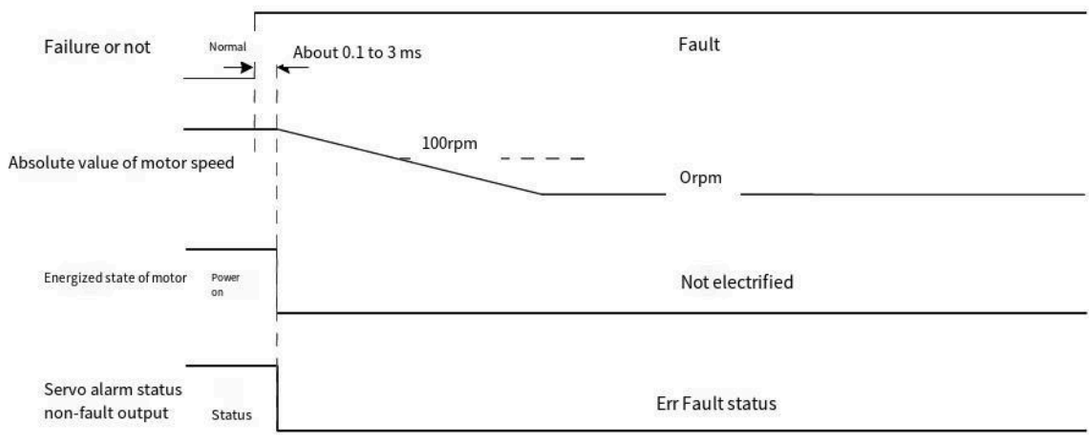
6-13 1

*

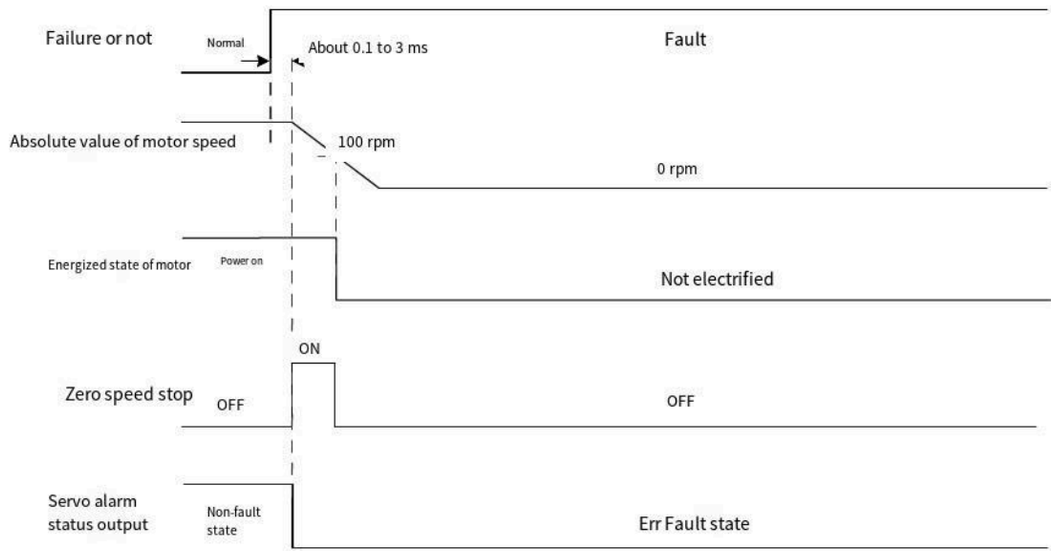
2

*1

DO
9(FunOUT.9
BK)
2002-0Ch
2002-0Dh
b
2

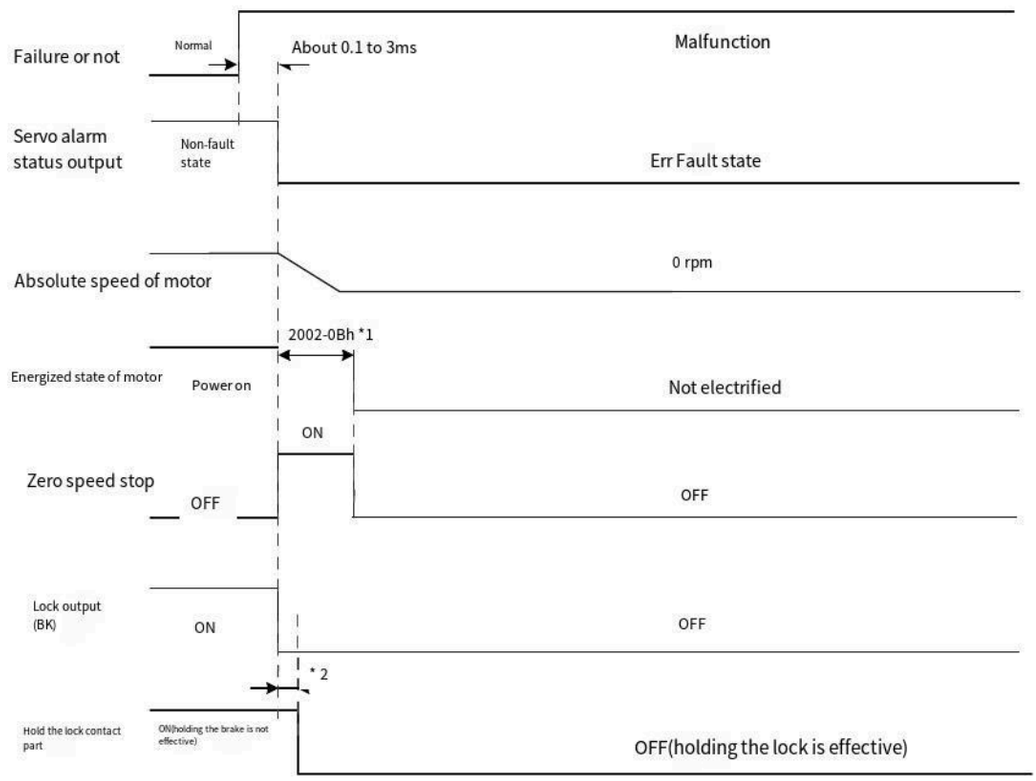


c 2



6-15 2()

d 2



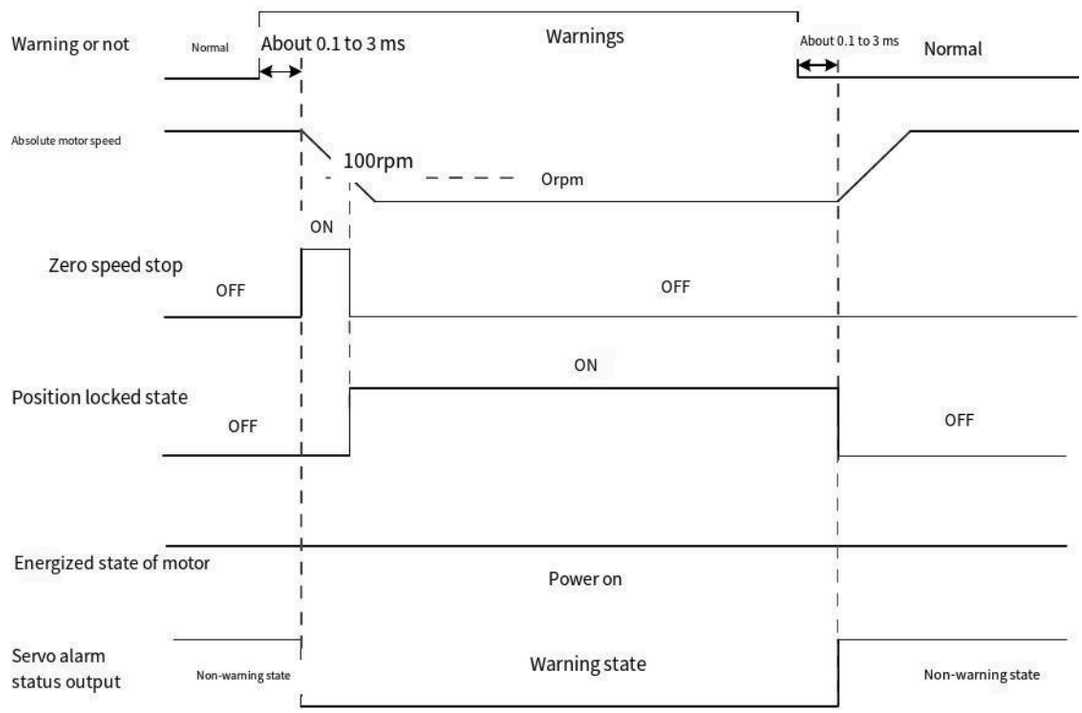
6-16 2()

*1 DO 9(FunOUT.9 BK) 2002-0Bh

*2 NOTE

3 Er.900(DI), Er.950(), Er.952() e)

e,



(BK)
ON

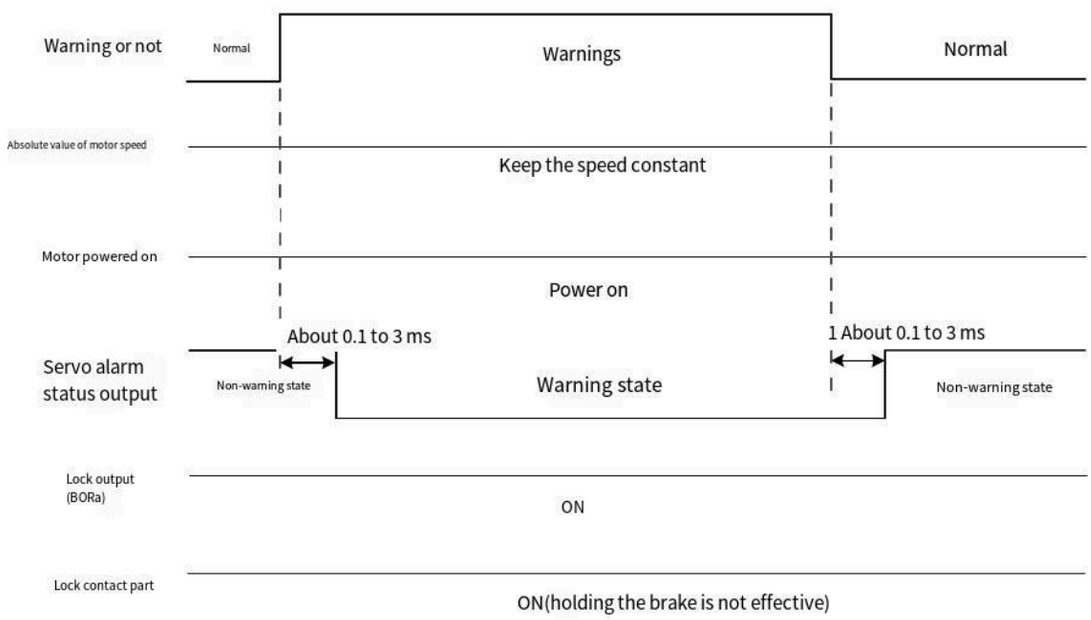
ON(
)

6 to
17

3 3

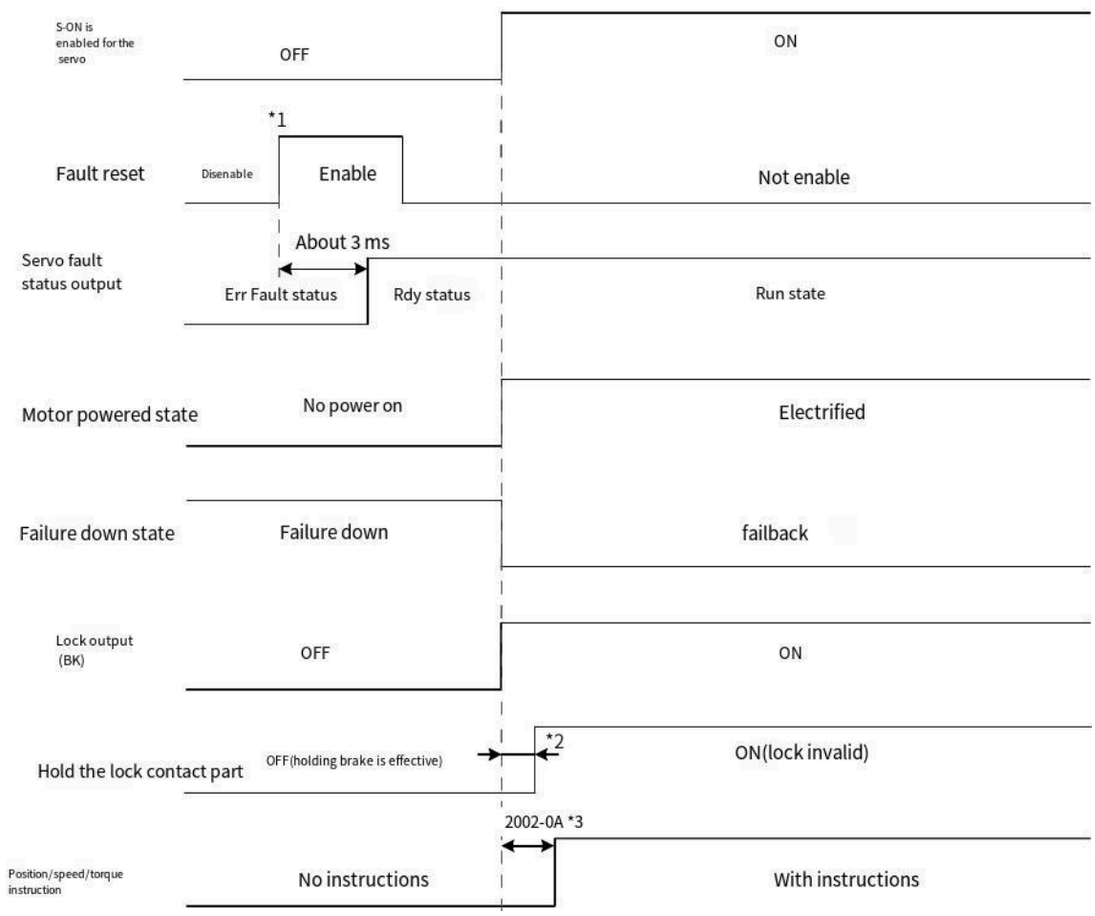
f)

f



6 to
18

g



6-19

NOTE

*1 DI (FunIN.2 ALM-RST) *2

*3 DO 9(FunOUT.9 BK) 2002-0Ah

6.1.

6-5

Shutdown mode	Free stop	Zero speed stop
Stop Description	Servo motor is not electrified, free deceleration to 0, deceleration time is affected by mechanical inertia, mechanical friction, etc.	The servo drive outputs reverse braking torque, and the motor quickly decelerates to 0.
Shutdown features	Smooth deceleration, small mechanical impact, but slow deceleration process.	Fast deceleration, there is mechanical impact, but the deceleration process is fast.

6 -

Free running state	Position kept locked
After the motor stops rotating, the motor is not powered on and the motor shaft can rotate freely.	After the motor stops rotating, the motor shaft is locked and cannot rotate freely.

1

OFF

2002-06h	name	Servo Enable OFF Stop mode selection Stop mode at servo drive disabled			Setting in effect	Stop setting With immediate effect	Data structure	-	Data type	Uint16
	Accessibility	RW	Can map	-	Related patterns	ALL	Data range	0 ~ 1	Factory Settings	0

2

When setting the servo enable OFF, the deceleration mode of the servo motor from rotation to stop and the motor state after stop.

Set Value	Shutdown mode
0	Free stop, keep free running state

Trouble instruction

2002-09h	name	Fault NO.1 Shutdown mode selection Stop mode at fault 1			Setting in effect	Stop setting With immediate effect	Data structure	-	Data type	Uint16
	Accessibility	RW	Can map	-	Related patterns	ALL	Data range	0	Factory Settings	0

3

Set the deceleration mode of the servo motor from rotation to stop and the state of the motor after stop when the servo drive has class 1 fault.

u

2002-08h	name	Overrange stop method selection Stop mode at overtravel			Setting takes effect	Shutdown Settings With immediate effect	Data structure	-	Data type	Uint16
	accessibility	RW	Can map	-	Related patterns	ALL	Data range	0 ~ 2	Factory Settings	1

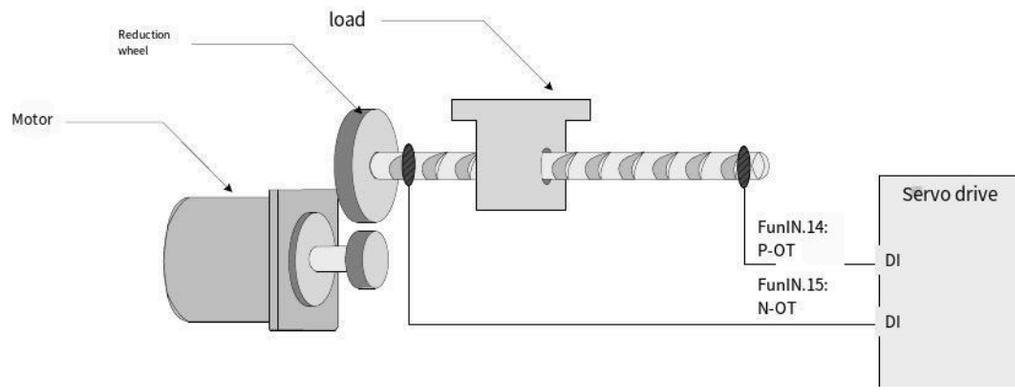
Set the servo motor from rotation to stop deceleration mode and stop motor state when overdrive occurs during operation.

Set Value	Stopping method
0	Free stop, keep free running state
1	Stop at zero speed and keep the position locked
2	Stop at zero speed and keep free running

(2002-08h) 1-

When the servo motor drives the vertical shaft, in order to ensure safety, the motor shaft should be set in the position locked state (2002-08h=1) after the occurrence of overdrive.

0



6-20

2 DI 14(FunIN.14 P-OT)

15(FunIN.15 N-OT)

DI

DI

encoding	Name	Feature name	Feature
FunIN.14	P-OT	Forward overrange switch	Invalid, forward drive is allowed When the mechanical movement exceeds the movable range, the overrange prevention function is effective, and the forward drive is prohibited
FunIN.15	N-OT	Reverse overrange switch	Invalid, reverse drive allowed When the mechanical movement is beyond the movable range, the entry overrange prevent function is effective, and the reverse drive is prohibited

4

2

DI 34 FunIN.34 EmergencyStop (200D-06h)

encoding	Name	Feature name	Feature
FunIN.34	EmergencyStop	brake	Invalid, the servo drive remains in its current operating state; Effective, zero speed stop, keep position locked, servo occurs warning Er.900(DI emergency brake).

200D-06h	name	Emergency Downtime Emergency stop			Set to take effect	The running Settings take effect immediately	Data structure	-	Data type	Uint16
	Accessibility	RW	Can map	-	Related patterns	-	Data range	0 ~ 1	Factory Settings	0

5

Emergency shutdown operation options.

6040 bit2(Quick stop) 0 605A

Set Point	Function
0	None operation
1	Enable emergency shutdown

Regardless of the operating state of the drive, when the function is effective, the servo drive will immediately stop according to the servo OFF stop mode (2002-05h).

6041 bit10 1

index	Name	Quick stop Mode Select the Quick stop option code			Setting takes effect	Run Settings shutdown takes effect	Data structure	VAR	Data type	Int16
605Ah	Accessibility	RW	Can map	NO	Correlation model	ALL	Data range	0 to 7	Factory Settings	2

PP

Set value	Shutdown mode
0	Free stop, keep free running state
1	Stop at 6084h ramp and keep free running
2	Stop at 6085h ramp and keep free running
3	Stop with 2007-10h emergency stop torque and keep the free running state
4	NA
5	Stop at 6084h ramp and keep position locked
6	Stop at 6085h ramp, keeping position locked
7	Stop at 2007-10h emergency stop torque and keep position locked

CSP

Set value	Shutdown mode
0	Free stop, keep free running state
1	Stop with 2007-10h emergency stop torque and keep the free running state
2	
3	
4	NA
5	Stop with the 2007-10h emergency stop torque and keep the position locked
6	
7	

CSV/PV/HM

Set value	Shutdown mode
0	Free stop, keep free running state
1	Stop at 6084h(HM: 609Ah) ramp and keep in free run
2	Stop at 6085h ramp and keep free running
3	Stop the scram torque and keep the free running state
4	NA
5	Stop at 6084h(HM: 609Ah) ramp, keeping position locked
6	Stop at 6085h ramp, keeping position locked
7	Stop with the 2007-10h emergency stop torque and keep the position locked

CST/PT

Set value	Shutdown mode
0	Free stop, keep free running state
1	Stop at 6087h ramp and keep free running
2	
3	Free stop, keep free running state
4	NA
5	Stop at 6087h ramp, keeping position locked
6	
7	Stop with the 2007-10h emergency stop torque and keep the position locked

6

6040 bit8=1(Halt)

605D

Index	Name	Pause mode selection Halt option code			Set in effect	Run Settings Shutdown effect	Data structure	VAR	Data type	Int16
605Dh	accessibility	RW	Can map	NO	Correlation model	ALL	Data range	1 ~ 3	Factory Settings	1

PP:

Set value	Shutdown mode
1	Stop with 6084h ramp and keep position locked
2	Stop at 6085h ramp, keeping position locked
3	Stop at 2007-10h emergency stop torque and maintain free running status

CSP:

Set value	Shutdown mode
1	Stop with the 2007-10h emergency stop torque and keep the position locked
2	
3	

PV/CSV/HM

Set value	Shutdown mode
1	Stop at 6084h(HM: 609Ah) ramp, keeping position locked
2	Stop at 6085h ramp, keeping position locked
3	Stop with the 2007-10h emergency stop torque and keep the position locked

PT/CST

Set value	Shutdown mode
1	Stop at 6087h ramp, keeping position locked
2	
3	Free stop and keep position locked

6.1.10

6091h

1 ()

6091-01h 6091-02h ( ) ( )

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= score
points

index	Name	Gear Ratio. Gear ratio			Setting takes effect	Effective immediately	Data structure	ARR	Data type	Uint32
6091h	accessibility	-	Ability to map	YES	Correlation model	PP PV HM CSP CSV	Data range	OD data Model 围	Factory Settings	OD default

Gear ratio is used to establish the proportional relationship between the load shaft displacement specified by the user and the motor shaft displacement.

fc=1mm

Electronic gear ratio setting range:

pB=10mm/r

(0.001× encoder resolution /10000, 4000× encoder resolution /10000)

n=5:1

P = 10485760(p/r)

20bit

Beyond this range, Er.B03(electronic gear ratio overrun fault) will occur

Relation between motor position feedback (encoder unit) and load shaft position feedback (instruction unit) :

Motor position feedback = load shaft position feedback × gear ratio

The relationship between motor speed (rpm) and load shaft speed (instruction unit /s) :

Position factor = Motor resolution P*n / PB

Load shaft speed x gear ratio / motor speed (rpm)= = 1048576 x 5 / 10

The relation between motor acceleration (rpm/m = 5242880 / 10 (instruction unit /s2) :

= 524288

Load axis acceleration × gear ratio ÷0.1 ×60

motor acceleration = encoder resolution ×1000

6091-1h=524288 6091-2h=1 1mm 524288

Subindex Oh	Name	Number of gear ratio subindexes. Number of gear ratio subindexes			Setting takes effect	-	Data structure	-	Data type	Uint8
	accessibility	RO	Can map	NO	Correlation model	-	Data range	-	Factory Settings	2

Subindex 1h	Name	Motor resolution Motor revolutions			Set in effect	Run Settings shutdown takes effect	Data structure	-	Data type	Uint32
	accessibility	RW	Can map	RPDO	Correlation model	-	Data range	0 - (232-1)	Factory Settings	1

Sub-index 2h	Name	Shaft resolution Shaft revolutions			Set in effect	Run Settings shutdown takes effect	Data structure	-	Data type	Uint32
	accessibility	RW	Can map	RPDO	Correlation model	-	Data range	1 - (232-1)	Factory Settings	1

The range of gear ratio is: 0.001× encoder resolution /10000-4000× encoder resolution /10000 Outside this range, Er.B03(gear ratio setting overrun fault) will occur.

Give attention to
 ◆ The values of 6091-1h and 6091-2h should be mathematically divided until there are no common divisor, and take the final value!

Polarity
607Eh

607Eh,,

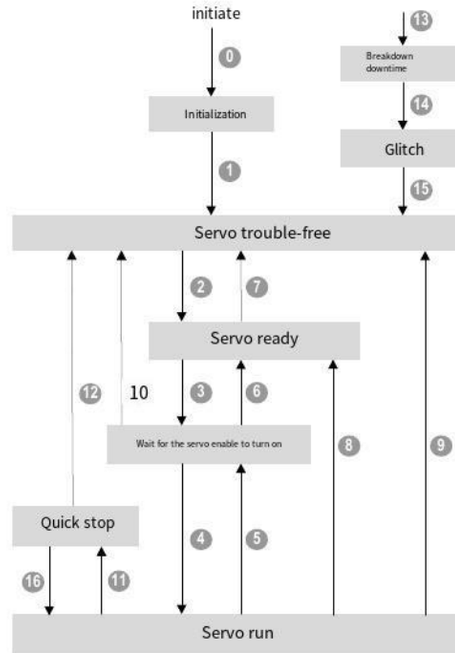
index	Name	Command polarity		Set effective	Run Settings	Data structure	VAR	Data type	Uint8
607Eh		Polarity			Shutdown takes effect				
	accessibility	RW	Can map	RPDO	Correlation model	ALL	Data range	00~FF factory Settings	00

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Bit	Description
0 to 4	Undefined
5	Torque instruction polarity: 0: Keep the current value 1: Instruction x (-1) PT: invert target torque 6071h CSP CSV: invert the torque feedforward 60B2 CST: invert the torque instruction (6071h+60B2h)
6	Speed command polarity 0: Keep the current value 1: Instruction x (-1) PV: invert the target torque 6071h CSP: invert the speed feedforward 60B1 CSV: invert the speed instruction (60FFh+60B1h)
7	Position instruction polarity 0: Keep the current value 1: Instruction x (-1) PP: invert the target position 607Ah CSP: invert the position instruction (607Ah+60B0h)

6.2

Bus 402



6-21 CiA402

initialize	Drive initialization, internal self-test is complete. The parameters of the drive cannot be set, and the driver function cannot be performed.
Servo trouble-free	Servo drive no fault or error has been eliminated. Drive parameters can be set.
Servo ready	Servo drive is ready. The drive parameters can be set.
Wait to turn on the servo enable	Wait for the servo drive to turn on the servo enable. Drive parameters can be set.
Servo run	The drive is running normally, a servo operation mode has been enabled, the motor has been powered on, and the motor rotates when the instruction is not 0. Drive parameter attribute "run change" can be set, other not.
Quick stop	The quick stop function is activated and the drive is performing the quick stop function. The drive parameter attribute is "Run change" can be set, the others cannot be set.
Failure stop	The drive has failed and is in the process of performing a failure stop. Drive parameters whose attribute is "Run Change" can be set, others cannot.
Fault	Fault shutdown complete, all drive functions disabled, while allowing change of drive parameters in order to troubleshoot.

CiA402 status switch		Control word 6040h	Status word 6041h bit0~bit9"1
0	Power on -> Initialize	Natural transition, no control instructions required	0x0000
1	Initialization -> Servo without fault	Natural transition without control commands If an error occurs during initialization, go directly to 13	0x0250
2	Servo No fault →> Servo ready	Ox0006	
3	Servo ready -> Wait to turn on the servo enable	Ox0007	0x0231 0x0233
4	Wait to turn on the servo Enable -> Servo Run	Ox000F	0x0237 0x0233
5	Servo Run -> Wait to turn on the servo enable	0x0007	
6	Wait for the servo enable to be turned on -> Servo Ready	Ox0006	0x0231
7	Servo ready -> Servo no fault	Ox0000	0x0250
8	Servo Run -> Servo ready	Ox0006	0x0231

	CiA402 status switch	Control word 6040h	Status word 6041h bit0~bit9"1
9	Servo Run -> Servo No fault	0x0000	0x0250
10	Wait to turn on the servo Enable -> Servo No Fault	0x0000	0x0250
11	Servo Run -> Quick Stop	Ox0002	0x0217
12	Quick stop -> Servo no trouble	The quick stop mode 605A is selected as 0~3, after the stop is completed, the natural transition without control instructions	0x0250
13	-> Fault stop	In any state except "fault", once the servo drive fails, it automatically	
14	Fa		
15	Fault -> Servo No fault	bit7 rising edge effective;	0x0250
16	Quic		

6041h bit10 bit13(bit14)

0

NOTE

6.2.1 6040h

index	Name	control word Control Word			Set to take effect	Run Settings	Data structure	VAR	Data type	Uint16
6040h						Shutdown effect				
	accessibility	RW	Can map	RPDO	Correlation model	ALL	Data range	0-65535 Factory Settings		0

bit	name		Description
0	You can turn on the servo to run	switch on	1- valid, 0- invalid
1	Turn on the main circuit electricity	enable voltage	1- valid, 0- invalid
2	Quick stop	quick stop	0- valid, 1- invalid
3	Servo run run	enable operation	1- valid, 0- invalid
4 to 6	mode related	operation mode specific	Related to each servo operation mode.
7	Failure reset	fault reset	For resettable faults and warnings, bit7 remains 1 when performing the fault reset function, and other control instructions are invalid. bit7 rising edge is effective;
8	Pause	halt	For the pause modes in each mode, query object dictionary 605Dh.
9, 10	Reserve	reverse	To be defined
11 ~ 15	Manufacturer custom	manufacturer-specific	Manufacturer's custom

bit

bit0 bit3 bit7

CiA402

bit4 bit6 ( )

bit9

6.2.2 6041h

index	Name	status word Status Word		Setting takes effect	-	Data structure	VAR	Data type	Uint16
6041h	accessibility	RO	Can map TPDO	Correlation model	ALL	Data range	0~xFFFF	Factory setting	0

State

bit0 bit9 6040h bit12 bit13 ( )
bit10/bit11/bit15

bit	name		Description
0	Servo ready	ready to switch on	1- valid, 0- invalid
1	You can turn on the servo to run	switch on	1- valid, 0- invalid
2	Servo run	operation enabled	1- valid, 0- invalid
3	Breakdown	fault	1- valid, 0- invalid
4	The main loop is electrically connected	voltage enabled	1- valid, 0- invalid
5	Quick stop	quick stop	0- valid, 1- invalid
6	Servo not operational	switch on disabled	1- valid, 0- invalid
7	Warnings	warning	1- valid, 0- invalid
8	Manufacturer custom	manufacturer-specific	Undefined function
9	Remote control	remote	1- Valid, the control word is valid. 0- Invalid
10	Target arrival	target reach internal	1- valid, 0- invalid
11	Internal limits valid running	limit active	1- valid, 0- invalid
12 ~ 13	mode related	operation mode specific	Related to each servo operation mode.
14	Home Custom	manufacturer-specific	Undefined function
15	Origin found	Home Find	1- valid, 0- invalid

Set point (binary)	Description
xxxx xxxx x0xx 0000 xxxx	Not ready to switch on Not ready to switch on
xxxx x1xx 0000 xxxx xxxx	Switch on disabled (Switch on disabled)
x01x 0001	Ready to switch on (Ready to switch on)
xxxx xxxx x01x 0011	Switched on: ready to switch on
xxxx xxxx x01x 0111	Operation enabled Quick stop active
xxxxxxxx x00x 0111	Operation Enabled Quick stop active
xxxx xxxx x0xx 1111	Fault reaction active (Fault reaction active)
xxxx xxxx x0xx 1000	Fault (Fault)

6.3

6.3.1

Bus 7 6502h

Index	Name	Support servo operation mode Supported drive modes			Set in effect	-	Data structure	VAR	Data type	Uint32
6502h	accessibility	RO	Can map	NO	Correlation model	-	Data range	-	Factory Settings	3A1h

bit	Description	0- Not supported 1- Supported
0	Contour Position Pattern (pp)	1
1	Variable Frequency Speed Control Mode (vl)	0
2	Contour Speed Mode (pv)	1
3	Contour Torque pattern (pt)	1
4	NA	0
5		
6		
7		
8		
9		
10-31		

6502h

6060h

6060h

6061h

Index	Name	Pattern selection Modes of operation			Set effective	Run Settings shutdown takes effect	Data structure	VAR	Data type	Int 8
6060h	accessibility	RW	Can map	RPDO	Correlation model	ALL	Data range	0 ~ 10	Factory Settings	0

Select servo run mode:

Set Value	Servo mode
0	NA
1	Outline Position Pattern (pp)
2	NA
3	Contour Speed Mode (pv)
4	Contour Torque Pattern (pt)
5	NA
6	Back to Zero mode (hm)
7	Interpolation mode (ip)
8	Cycle Sync Position Mode (csp)
9	Cycle Sync Speed Mode (csv)
10	Periodic Synchronous Torque Mode (cst)

SDO
SDO

PDO

6061h

index	Name	Pattern selection Modes of operation display			Set effective	-	Data structure	VAR	Data type	Int8
6061h	accessibility	RO	Can map	TPDO	Correlation model	ALL	Data range	0 to 10	Factory Settings	0

6.3.2

Display the current operating mode of the servo:

Set value	Servo mode	
0	NA	
1	Outline Position Pattern (pp)	
2	NA	
3	Contour Speed Mode (pv)	
4	Contour Torque Pattern (pt)	
5	NA	
6	Back to Zero mode (hm)	
7	Interpolation mode (ip)	
8	Cycle Sync Position Mode (csp)	
9	Cycle Sync Speed Mode (csv)	
10	Periodic Synchronous Torque Mode (cst)	

1

2

3

4

()

1ms

6.3.3

Cycle time	Contour Position pattern (pp)	Back to Zero mode (hm)	Cycle Sync Position Mode (csp)	Cycle Sync Contour speed die contour torque die cycle synchronous speed mode Moment Mode (cst) (csv)	Formula (pp)	Formula (pt)	
125us	X	X	X	X	X	Y	Y
250us	X	X	X	X	X	Y	Y
500us	X	X	X	Y	Y	Y	Y
1ms	Y	Y	Y	Y	Y	Y	Y

1ms

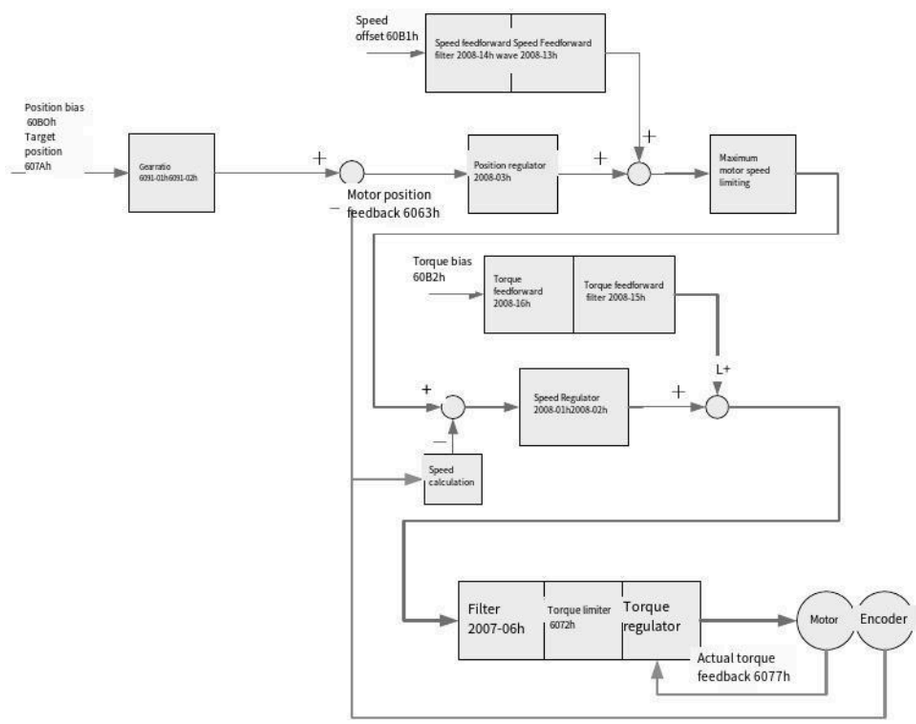
1ms (总线 250us)

6.4 cs

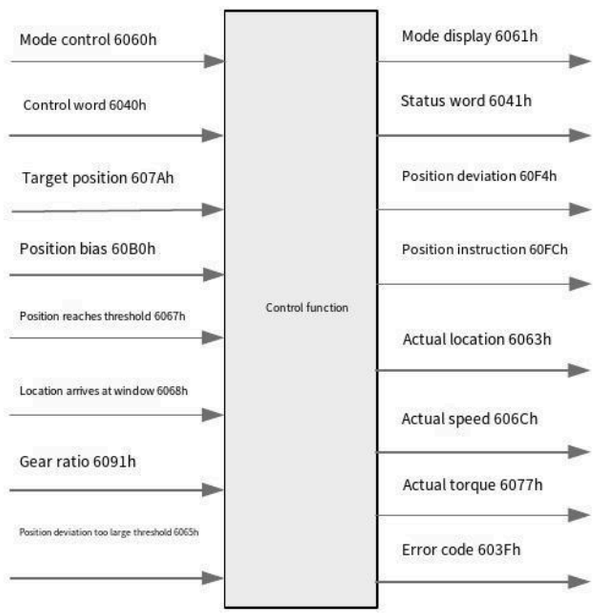
607Ah

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6.4.1



6-22 csp



6-23 csp

CSP

6.4.2

Control word 6040h		
	Name	Description
0	The servo is ready to Switch on	Bit0 to bit3 are both 1, indicating startup
1	Switch on the main circuit electrical Enable voltage	
2	Quick stop	
3	Enable operation for servo running	
8	Pause Halt	0: The servo is set by Bit0~bit3 1: Servo press 605Dh to set pause. 1. Press 605DN to set straight pause.

csp mode of the bus, only absolute position instructions are supported.

Status word 6041h		
position.	Name	Description
10	Target Reach	0: The target position has not been reached 1: Target position reached
11	internal limit actice for software internal location	0: Neither position instruction nor position feedback is out of limit 1: Position instruction or position feedback is out of limit
12	drive follow the instructions from the station command Value	0: The slave station does not follow the command 1: Follow the command from the slave station The slave station is in the running state and begins to execute the position instruction, the position 1; Otherwise 0
13	Follow the Following error	0: No large position deviation fault 1: The position deviation is too large
14	DDL motor Angle identification completed	0: DDL motor Angle identification is not completed 1: DDL motor Angle identification is complete
15	Return to zero to complete the Home Find	0: Origin return to zero incomplete 1: origin return to zero completed

Index (hex)	Subindex (hex)	Name	Access	Data type	Units	Set range	Default
603F	00	Error code	RO	Uint16	-	0 ~ 65535	0
6040	00	Control word	RW	Uint16	-	0 ~ 65535	0
6041	00	Status word	RO	Uint16	-	0~xFFFF	0
6060	00	Operating mode	RW	Int8	-	0 ~ 10	0
6061	00	Mode displays	RO	Int8	-	0 ~ 10	0
6062	00	position instructions	RO	Int32	Instruction unit	-	-
6063	00	Position feedback	RO	Int32	Encoder unit	-	-
6064	00	Position feedback	RO	Int32	Instruction unit	-	-
6065	00	Position deviation too large threshold	RW	Uint32	Instruction units	0 ~ (232-1)	3145728
6067	00	Position reaches threshold	RW	Uint32	Encoder unit	0 ~ 655350 ~ 65535	734
6068	00	Location arrival window	RW	Uint16	ms		x10
606C	00	Actual speed	RO	Int32	Instruction unit /s	-	-
6072	00	Maximum torque	RPDO	Uint16	0.1%	0 ~ 5000	5000
6077	00	Actual torque	RO	Int16		- 5000 ~ 5000	0
607A	00	Target position	0.1% RW	Int32		- 231 - (231-1)	0
6091	01	Instruction unit motor resolution	RW		-	0 ~ (232-1)	1
	02	Axis resolution	Uint32 RW		-	1 - (232-1)	1
60B0	00	position bias	Uint32 RW	Int32	Instruction unit	- 231 - (231-1)	0
60B1	00	Speed bias	RW	Int32	Instruction unit /s	- 231 - (231-1)	0

Index (hex)	Subindex (hex)	Name	Access	Data type	Units	Set range	Default
60B2	00	Torque bias	RW	Int32	0.1%	- 5000-5000	⁰
60F4	00	Position deviation	RO	Int32	Instruction unit	-	-
60FC	00	Location instruction	RO	Int32	Encoder unit	-	-
2007	06	Torque filtering time constant	RW	Uint16	0.01ms	0-3000.	79
2008	01	Speed loop Gain	RW	Uint16	0.1Hz	1-20000.	250
	02	Speed loop integration time	RW	Uint16	0.01ms	15-51200	3183
	03	Position loop gain	RW	Uint16	0.1Hz	0-20000.	400
	13	Speed feedforward filtering	RW	Uint16	0.01ms	0-6400.	50
	14	Speed feedforward gain	RW	Uint16	0.1%	0 ~ 1000	0
	15	Torque feedforward filtering	RW	Uint16	0.01ms	0-6400.	50
	16	Torque feedforward gain	RW	Uint16	0.1%	0-2000.	0

NOTE ◆

6.4.3

1

index	Subindex	Name	Description
2005	3E	Location Indicates the threshold unit	Set the units of 0x6067: 0- instruction unit 1- encoder units
6067	00	Locate the completion threshold	When the position deviation is within the range of ±6067h, and the time reaches 6068, the DO signal of the positioning completion is effective, and the bit10 of 6041 =1. If either of the two conditions is not met, the position arrival is invalid.
6068	00	Locate the finish window	

2

index	Subindex	Name	Description
6065	00	Position deviation too large threshold	When the position deviation is greater than this value, the position deviation is too large fault occurs, and the panel displays Er.B00, while the bit13 of the status word is set. When 6065h=0xFFFFFFFF, the drive does not perform large position deviation detection.

6.4.4

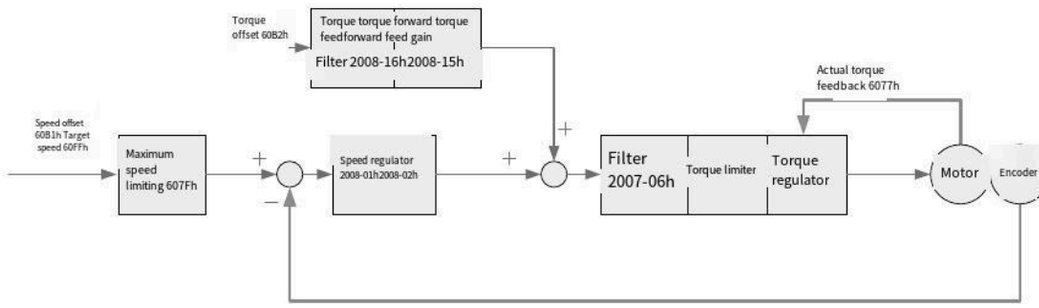
csp

RPDO	TPDO	remark
6040: control word	6041: status word	Must
607A: target position	6064: position feedback position actual value	Must
6060: Mode selection modes of operation	6061: Run mode displays modes of operation display	Optional

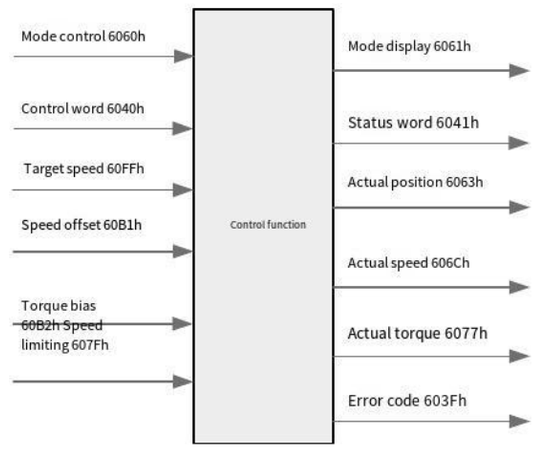
6.5 csv

60FF,

6.5.1



6-24 csv



6-25 csv

6.5.2

Control word 6040h bit		
	Name	Description
0	The servo is ready to Switch on	
1	Switch on the main circuit electrical Enable voltage	
2	The value of Bito to bit3 is 1, indicating a Quick stop	
3	Enable operation for servo running	
8	Pause Halt	0: The servo is set by Bit0~bit3 1: Servo press 605Dh to set pause.
Status word 6041h		
position.	Name	Description
10	Target Reach	0: Target speed not reached 1: Target speed reached
12	drive follow the command Value from the station	0: Slave station does not follow command 1: Follow the command from the slave station
13	--	Undefined
15	Return to zero to complete the Home Find	0: Origin return to zero incomplete 1: origin return to zero completed

Index (hex)	Subindex (hex)	Name	Access	Data type	Units	Set range	Default
603F	00	Error code	RO	Uint16	-	0-65535.	0
6040	00	Control word	RW	Uint16	-	0-65535.	0
6041	00	Status word	RO	Uint16	-	0~xFFFF	0
6060	00	Operation mode	RW	Int8	-	0 ~ 10	0
6061	00	Indicates the operation mode	RO	Int8	-	0 to 10	0
6063	00	Position feedback	RO	Int32	Encoder unit	-	-
6064	00	Position feedback	RO	Int32	Instruction unit	-	-
606C	00	Actual velocity	RO	Int32	Unit of instruction /s	-	-
6077	00	Actual torque	RO	Int16	0.1%	- 5000 ~ 5000	0
607F	00	Maximum velocity	RW	Uint32	Command unit /s	0 ~ (232-1)	230
6083	00	acceleration	RW	Uint32	Instruction unit /s2	0 - (232-1)	100
6084	00	Reduced Speed	RW	Uint32	Unit of instruction /s2		100
60B1	00	Speed offset	RW	Int32	Instruction unit /s	0 - (232-1) - 231 - (231-1) -	0
60B2	00	torque offset	RW	Int32	0.1%	5000-50000-5000	0
60EO	00	Forward torque limit	RW	Uint16	0.1%		5000
60E1	00	Reverse torque limit	RW	Uint16		0-50000-3000	5000
60FF	00	Target speed	RW	0.1% Int32 Uint16 Unit of instruction		- 231 - (231-1)	0
2007	06	Torque filtering time constant	RW	/sUint16	0.01ms		79
2008	01	Speed loop Gain	RW		0.1Hz	1-20000.	250
	02	Speed loop integration time	RW	Uint16	0.01ms	15-51200	3183
	15	Torque feedforward filtering	RW	Uint16	0.01ms	0-6400.	50
	16	Torque feedforward gain	RW	Uint16	0.1%	0-2000.	0

NOTE

6.5.3

1

index	Subindex	Name	Description
606Dh	00	Speed to the threshold	The difference between the target speed of 60FF(converted into motor speed /rpm) and the actual speed of the motor is within ±606D, and when the time reaches 606E, it is considered that the speed reaches, the bit10 of the status word 6041 =1, and the speed reaches the DO function.
606Eh	00	Speed to the window	In contour speed mode and cycle synchronous speed mode, when the servo enable is effective, this flag bit is meaningful; Otherwise, it is meaningless.

6.5.4

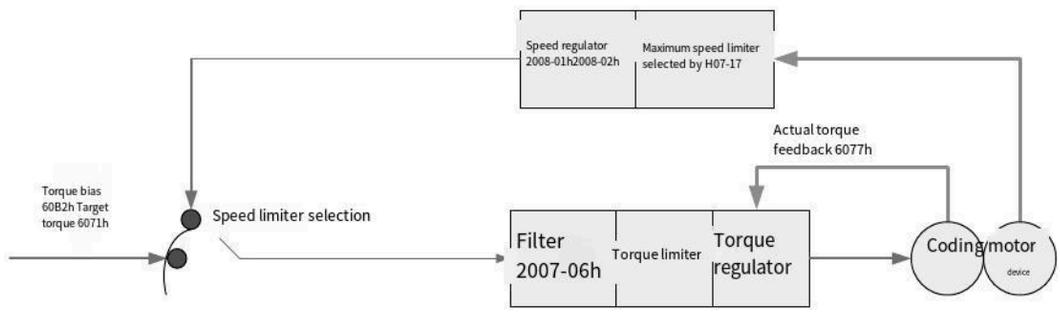
csv

RPDO	TPDO	remark
6040: control word	6041: status word	Must
60FF: target Velocity		
	6064: position actual value606C: velocity actual value	Optional
		Optional
6060: Select modes of operation	6061: Run mode displays modes of operation display	Optional

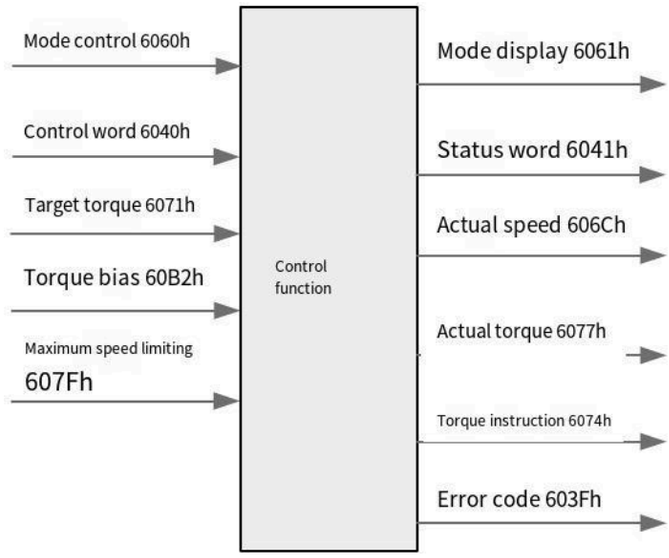
6.6 cst

6071h

6.6.1



6-26 cst



6-27 cst

H07-17

6.6.2

Control word 6040h		
position.	Name	Description
0	The servo is ready to Switch on	Bito to bit3 are both 1, indicating startup
1	Switch on the main circuit electrical Enable voltage	
2	Quick stop	
3	Enable operation for servo running	
8	Pause Halt	0: The servo is set by Bit0~bit3 1: Servo press 605Dh to set pause
Status word 6041h		
position.	Name	Description
10	Target Reach	0: Target torque not reached 1: Target torque is reached
12	drive follow the command Value from the station	0: The slave station did not follow the command 1: Follow the command from the station
13	--	--
15	Return to zero to complete the Home Find	0: Origin return to zero incomplete 1: origin return to zero completed

Index (hex)	Subindex (hex)	Name	Access	Data type	Units	Set range	Default
603F	00	Error code	RO	Uint16	-	0 ~ 65535	0
6040	00	Control word	RW	Uint16	-	0-65535.	0
6041	00	Status word	RO	Uint16	-	0~xFFFF	0
6060	00	Operating mode	RW	Int8	-	0 to 10	0

Index (hex)	Subindex (hex)	Name	Access	Data type	Units	Set range	Default
6061	00	Pattern display	RO	Int8	Instruction unit	0 ~ 10	0
606C	00	Actual speed	RO	Int32	/s	-	-
6071	00	Target torque	RW		0.1%	- 4000-4000	0
6074	00	Torque instruction	RO	Int16	0.1%	- 5000 ~ 5000	0
6077	00	Actual torque	RO	Int16	0.1%	- 5000-5000	0
607F							
60B2							
60E0							
60E1							
2007							
2008	02	Speed loop integration time	RW	Uint16	0.01ms	15-51200.	3183

NOTE

6.6.3

index	Subindex	Name	Description
2007	16	Torque reaches the benchmark	When the difference between torque and reference value is greater than 2007h:17 value, the output effectively reaches the signal TOQREACH, and the bit10 of status word 6041 is set to 1. When the difference between torque and reference value is less than 2007h:18 value, the output is invalid, and the bit10 of status word 6041 is clear to zero.
2007	17	Torque reaches a valid value	
2007	18	Torque reaches an invalid value	

6.6.4

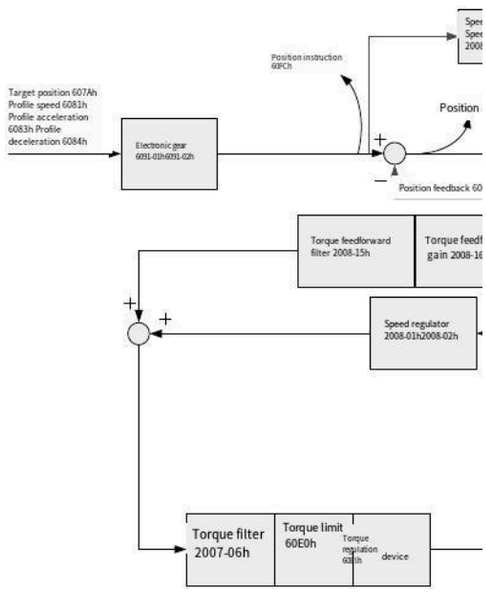
cst

RPDO	TPDO	remark
6040: control word control word6071: target Torque	6041: status word Status word	Must
	6064: position actual value606C: velocity feedback velocity actual value6077: Torque ActualValue	Optional
		Optional
		Optional
6060: Select modes of operation	6061: Run mode displays modes of operation display	Optional

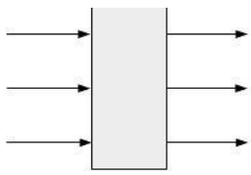
6.7

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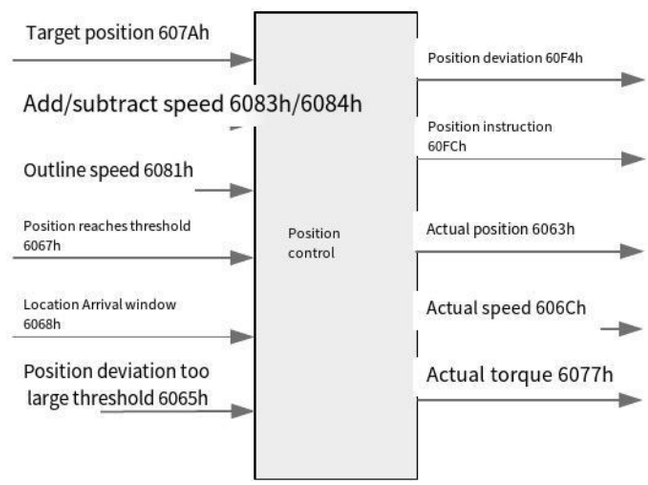
6.7.1



6-28 (pp)



6062h
60FCh(p)
6063h(p)
200B-10h
6064h
60F4h



6-29 (pp)

607F

6.7.2

Control word 6040h		
position.	Name	Description
0	The servo is ready to Switch on	Bit0 to bit3 are all 1, indicating startup
1	Switch on the main circuit electrical Enable voltage	
2	Quick stop	
3	Enable operation for servo running	
4	New target location New set-point	The rising edge of this bit from 0 to 1 indicates the pre-trigger new target position 607Ah, profile speed 6081h, acceleration 6083h, and deceleration 6084h given

Control word 6040h		
position.	Name	Description
5	Update Change set immediately	0: Not updated immediately 1: Update immediately
6	Absolute position instruction/Relative position instruction abs/rel	0: The target position is the absolute position instruction 1: Target position is relative position instruction

Status word 6041h		
position.	Name	Description
10	Target reached	0: Target position not reached 1: Target location reached
12	Target location update Set point acknowledge	0: updatable target location 1: The target location cannot be updated
13	Follow the Following error	0: There is no large position deviation fault 1: The position deviation is too large
15	Return to zero to complete the Home Find	0: The origin return to zero is incomplete 1: Origin return to zero complete

bit10
6041
1

NOTE

index	Subindex	Name	Access	Data type	Units	Set range	Default
603F	00	Error code	RO	Uint16	-	0 ~ 655350	0
6040	00	Control word	RW	Uint16	-	~ 65535	0
6041	00	Status word	RO	Uint16	-	0~xFFFF	0
6060	00	Operating mode	RW	Int8	-	0 to 10	0
6061	00	Pattern display	RO	Int8	-	0 ~ 10	0
6062	00	Location instruction	RO	Int32	Instruction unit	-	-
6063	00	Position feedback	RO	Int32	Encoder unit	-	-
6064	00	Position feedback	RO	Int32	Instruction unit	-	-
6065	00	Position deviation too large threshold	RW	Uint32	Instruction unit	0 - (232-1)	1048576
6067	00	Position reaches threshold	RW	Uint32	Encoder unit	0 ~ 65535	734
6068	00	Location arrival window	RW	Uint16	ms	0 ~ 65535	x10
606C	00	Actual speed	RO	Int32	Instruction unit /s	-	-
6077	00	Actual torque	RO	Int16	0.1%	- 5000 ~ 5000	0
607A	00	Target location	RW	Int32	Instruction unit	- 231 - (231-1)	0
6083	00	Acceleration	RW	Uint32	Instruction unit /s2	0 ~ (232-1)	100
6084	00	Reduction Speed	RW	Uint32	Instruction unit /s2	0 ~ (232-1)	100
6091	01	Motor resolution	RW	Uint32	-	0 ~ (232-1)	1
	02	Shaft resolution	RW	Uint32	-	1 - (232-1)	1
60E0	00	Forward torque limit	RW	Uint16	0.1%	0-5000.	5000
60E1	00	Reverse torque limit	RW	Uint16	0.1%	0-5000.	5000
60F4	00	Position deviation	RO	Int32	Instruction unit	-	-
60FC	00	Location instruction	RO	Int32	Encoder unit	-	-
2007	06	Torque filtering time constant	RW	Uint16	0.01ms	0-3000.	79

index	Subindex	Name	Access	Data type	Units	Set range	Default
2008	01	Speed loop Gain	RW	Uint16	0.1Hz	1-20000	250
	02	Speed loop integration time	RW		0.01ms		3183
	03	Position loop gain	RW	Uint16	0.1Hz		400
	13	velocity feedforward filtering	RW	Uint16 Uint16	0.01ms	15 ~ ~ 64000 ~ 10000 ~ 64000.	50
	14	Speed feedforward gain	RW	Uint16	0.1%	512000-200000-2000	0
	15	Torque feedforward filtering	RW	Uint16 Uint16 Uint16	0.01ms		50
	16	Torque feedforward gain	RW		0.1%		0



NOTE

6.7.3

1

index	Subindex	Name	Description
2005	15	Locate the finished signal output condition	Set the output condition of the positioning completion signal.
2005	3E	Location Indicates the threshold unit	Set the unit of 0x6067: 0- instruction unit 1- encoder units
6067	00	Positioning Completion threshold Positioning completion window	When the position deviation is within the range of ±6067h, and the time reaches 6068, the DO signal of the positioning completion is effective, and the bit10 of 6041 =1. If either of the two conditions is not met, the position arrival is invalid.
6068	00		

2

index	Subindex	Name	Description
6065h	00h	Position deviation too large threshold	When the position deviation (instruction unit) is greater than 6065h, the position deviation is too large fault, the panel displays Er.B00, and the bit13 of the status word is set. When the value of 6065h is set to OxFFFFFFFF, the monitoring of position deviation is blocked.

6.7.4

1, 1--

a

(6083h 6084h

6081h 607Ah)

b 6040h bit4 0 1

c 6040h bit4

6040 bit5 1 6041h bit12 0 ① 6041 bit12 0 1 ①

(6041 bit12 0 1)

d 6041h bit12 1

6040h

bit4 1 0

6040h
bit4

e 6040h bit4 1 0 6041h bit12 1 0

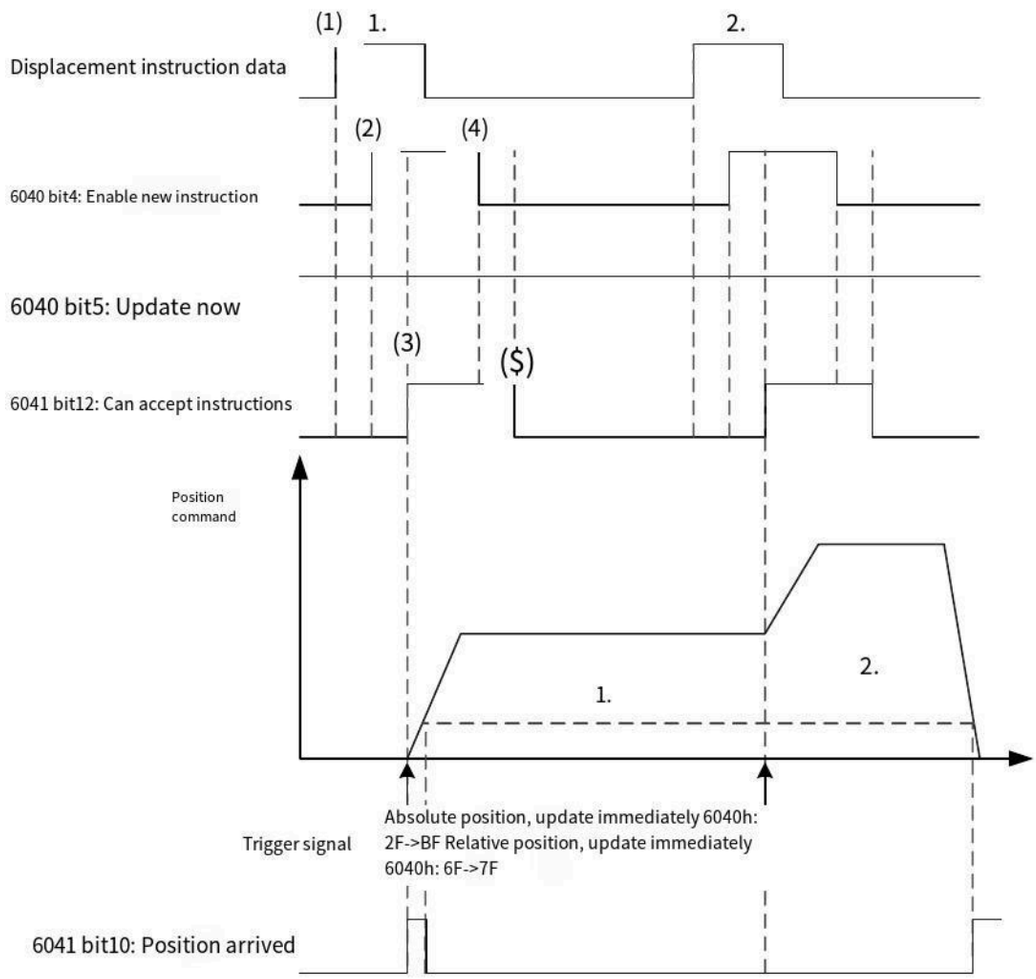
6040h bit4 1 0 6041h bit12

① ② ①

=① 607Ah+ ②

607Ah

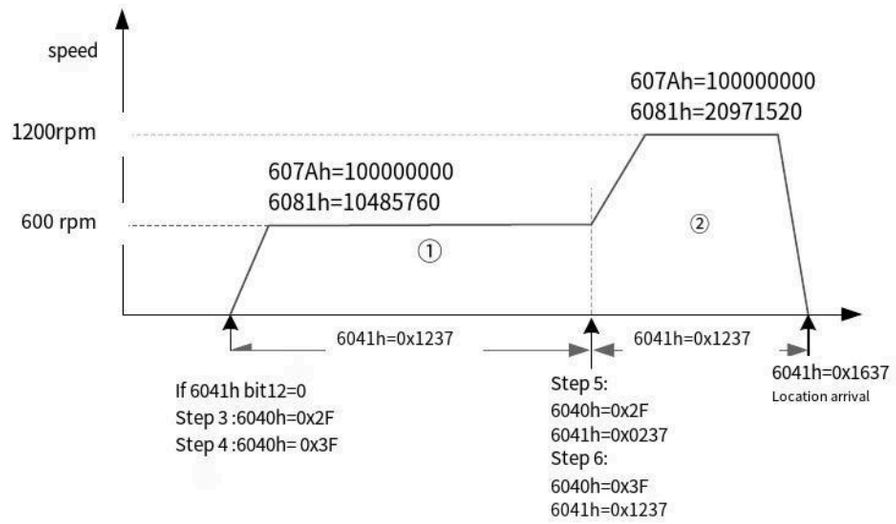
=② 607Ah



2, ① 607A=100000000

6081=10485760p/s ②
607A=100000000

6081=20971520p/



2 2--

a

(6083 6084

6081 607A)

b 6040 bit4 0 1

c 6040 bit4

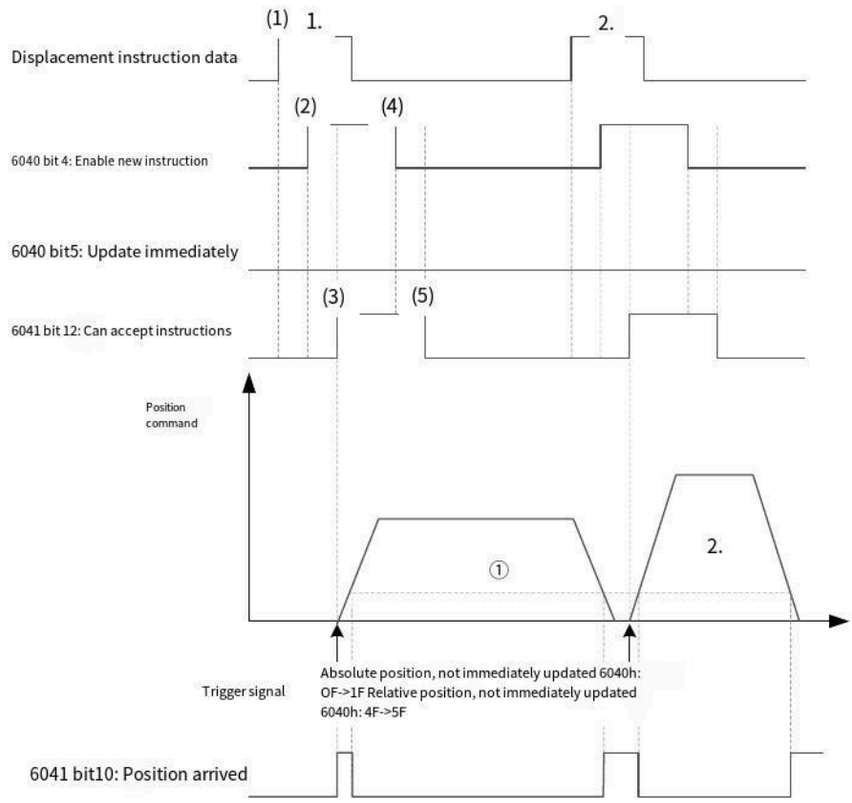
6040 bit5 0 6041 bit12 0 ① 6041 bit12 0 1 ①

d 6041 bit12 1 6040 bit4 1
0

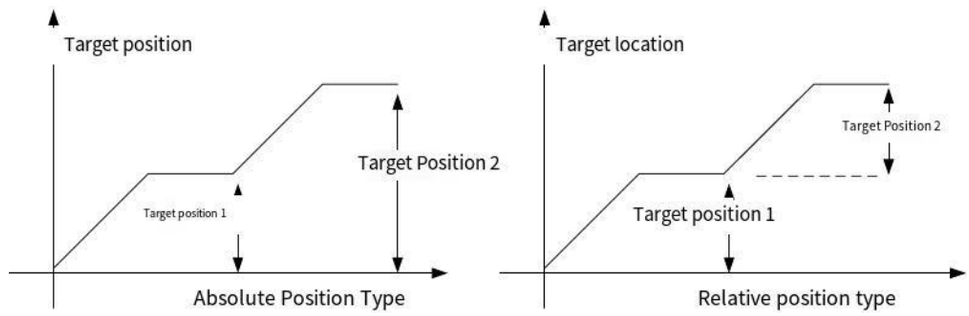
6040 bit4

e
6040 bit4 1 0 6041 bit12

(6041 bit12 0 1)



6-31



6 to 32

6.7.5

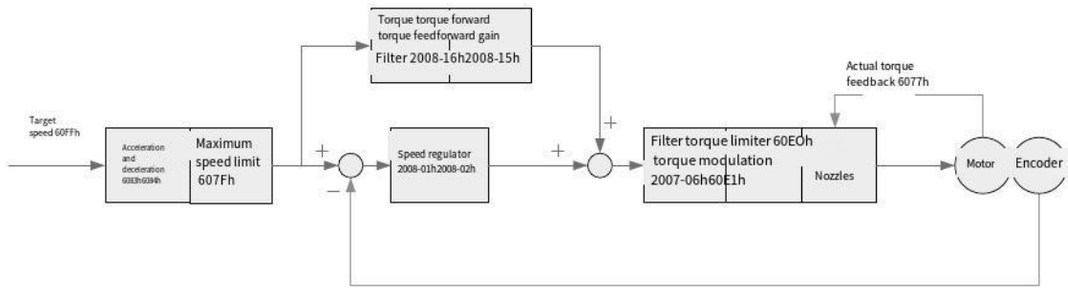
(pp)

RPDO	TPDO	remark
6040: control Word control word607A: target position6081: profile speed profile velocity6083: profile acceleration6084: Profile Acceleration6084: profile deceleration6060: Target position6081: Profile Profile Acceleration6060: Select modes of operation	6041: status word	Must
	6064: position feedback position actual value	Must
		Must
		Optional
		Optional
	6061: Run Mode Shows modes of operation display	Optional

6.8 v

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6.8.1



6-33 (pv)

607F

6.8.2

Control word 6040h		
	Name	Description
0	The servo is ready to Switch on	Bito-bit3 is 1, indicating startup
1	Switch on the main circuit electrical Enable voltage	
2	Quick stop	
3	Enable operation for servo running	
8	Pause Halt	0: The servo is set by Bit0~bit3 1: Servo press 605Dh to set pause.
Status word 6041h		
	Name	Description
10	Target Reach	0: Target speed not reached 1: Target speed reached
11	internal limit actice for software internal location	0: Position instruction and position feedback are not exceeded 1: Position instruction or position feedback overrun
15	Return to zero to complete the Home Find	0: Origin return to zero incomplete 1: origin return to zero completed

Index (hex)	Subindex (hex)	Name	Access	Data type	Units	Set range	Default
603F	00	Error code	RO	Uint16	-	0-65535.	0
6040	00	Control word	RW	Uint16	-	0 ~ 65535	0
6041	00	Status word	RO	Uint16	-	0~xFFFF	0
6060	00	Operating mode	RW	Int8	-	0 ~ 10	0
6061	00	Pattern display	RO	Int8	-	0 ~ 10	0
607F	00	Maximum profile speed	RW	Uint32	Instruction unit /s	0 - (232-1)	230
6063	00	Position feedback	RO	Int32	Encoder unit	-	-
6064	00	Position feedback	RO	Int32	Instruction units	-	-
60FF	00	Target speed	RW	Int32	Instruction unit /s	- 231 - (231-1)	0

Index (hex)	Subindex (hex)	Name	Access	Data type	Units	Set range	Default
60EO	00	Forward torque limit	RW	Uint16	0.1%	0 ~ 5000	5000
60E1	00	Reverse torque limit	RW	Uint16	0.1%	0-5000.	5000
606C	00	Actual speed	RO	Int32	Instruction unit /s	-	-
6077	00	Actual torque	RO	Int16	0.1%	- 5000-5000	0
2007	06	Torque filtering time constant	RW	Uint16	0.01ms	0-3000.	79
2008	01	Speed loop Gain	RW	Uint16	0.1Hz	1-20000.	250
	02	Speed loop integration time	RW	Uint16	0.01ms	15-51200	3183
	15	Torque feedforward filtering	RW	Uint16	0.01ms	0 ~ 6400	50
	16	Torque feedforward gain	RW	Uint16	0.1%	0-2000.	0

NOTE

6.8.3

index	Subindex	Name	Description
606Dh	00	Speed to the threshold	The difference between the target speed of 60FF(converted into motor speed /rpm) and the actual speed of the motor is within ±606D, and when the time reaches 606E, it is considered that the speed reaches, the bit10 of the status word 6041 =1, and the speed reaches the DO function.
606Eh	00	Speed to the window	In contour speed mode and cycle synchronous speed mode, when the servo enable is effective, this flag bit is meaningful; Otherwise, it is meaningless.

6.8.4

(pv)

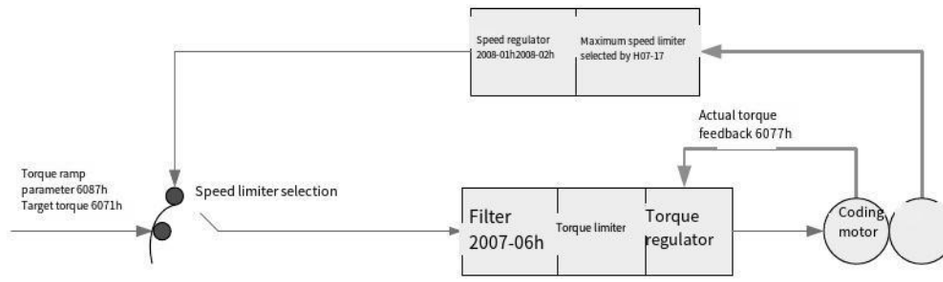
RPDO	TPDO	remark
6040: control word	6041: status word	Must
60FF: target Velocity		Must
	6064: position actual value606C: velocity actual value	
		Selectable
6083: profile acceleration		Selectable selectable
6084: profile deceleration		selectable
6060: Select modes of operation	6061: Run mode displays modes of operation display	

6. t

6071h, 6087h

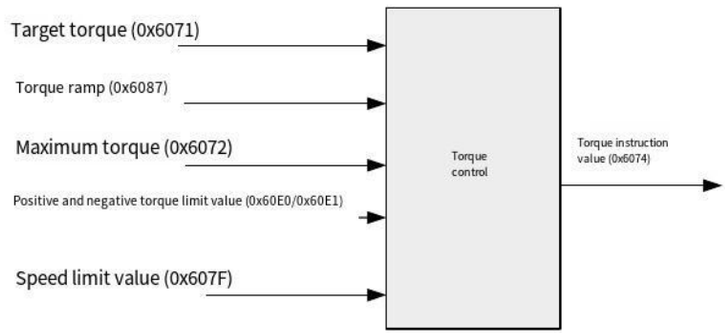
1 6.

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6-34 pt

Contour torque mode (0x6060=4)



6-35 pt

H07-17

2 6.

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Control word 6040h		
position.	Name	Description
0	The servo is ready to Switch on	Bit0 to bit3 are all 1, indicating startup
1	Switch on the main circuit electrical Enable voltage	
2	Quick stop	
3	Enable operation for servo running	
8	Pause Halt	0: The servo is set by Bit0~bit3 1: Servo press 605Dh to set pause

Status word 6041h		
position.	Name	Description
10	Target Reach	0: Target torque reached 1: Target torque is not reached
11	internal limit actice for software internal location	0: Position feedback is not exceeded 1: Location feedback overrun
15	Return to zero to complete the Home Find	0: The origin return to zero is not complete 1: Origin return to zero complete

Index (hex)	Subindex (hex)	Name	Access	Data type	Units	Set range	Default
603F	00	Error code	RO	Uint16	-	0 ~ 65535	0
6040	00	Control word	RW	Uint16	-	0 ~ 65535	-
6041	00	Status word	RO	Uint16	-	0-xFFFF	0
6060	00	Operating mode	RW	Int8	-	0 ~ 10	0
6061	00	Pattern display	RO	Int8	-	0 to 10	0
606C	00	Actual speed	RO	Int32	Instruction unit /s	-	-
6071	00	Target torque	RW	Int16	0.1%	- 4000 ~ 4000	-
6072	00	Maximum torque	RW	Uint16	0.1%	0-4000.	3500
6074	00	Torque instruction	RO	Int16	0.1%	-	-
6077	00	Actual torque	RO	Int16	0.1%	-	-
607F	00	Maximum profile speed	RW	Uint32	Instruction unit /s	0 - (232-1)	52428800
6087	00	Torque ramp	RW	Uint32	0.1%/s	0 - (232-1)	232-1
2007	06	Torque filtering time constant	RW	Uint16	0.01ms	0-3000.	79
2008	01	Speed loop Gain	RW	Uint16	0.1Hz	1-20000.	250
	02	Speed loop integration time	RW	Uint16	0.01ms	15-51200	3183

NOTE

3 6.

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1

index	Subindex	Name	Description
2007	16	Torque reaches the benchmark	When the difference between torque and reference value is greater than 2007h:17 value, the output effectively reaches the signal
2007	17	Torque reaches a valid value	TOQREACH, while the bit10 of the status word 6041 is set to 1, when the difference between torque and the reference value is small
2007	18	Torque reaches an invalid value	When the value of 2007h:18, the output is invalid, and the bit10 of the status word 6041 is cleared to zero.

2

2007-12h

Index (hex)	Subindex (hex)	name	Stats	Data type	Units	Set range	Default
2007	12	Speed Limit Sources	RW	Uint16	1	0 ~ 2	0

Numerical value	Description	
0	Internal speed limit	RPM limits are determined by 2007-14h and 2007-15h
1	EtherCAT external speed limits	Positive speed limit: min{607Fh, 2007-14h} Reverse speed limit: min{607Fh, 2007-15h}
2	Select 2007-14h/200715h as the internal speed limit via FunIN.36	DI(FunIN.36) invalid: 2007-14h as the reverse turn speed limit DI(FunIN.36) valid: 2007-15h as the reverse turn speed limit

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pt

RPDO	TPDO	remark
6040: control word control word6071: target Torque	6041: status word Status word	Must
		Must
6087: Torque slope		Optional
		Optional
	6064: position actual value606C: velocity velocity actual value6077: Torque ActualValue6061: The modes of operation are displayed in the running mode display	Optional
		Optional
6060: Select modes of operation		optional

6.10 (hm

Z

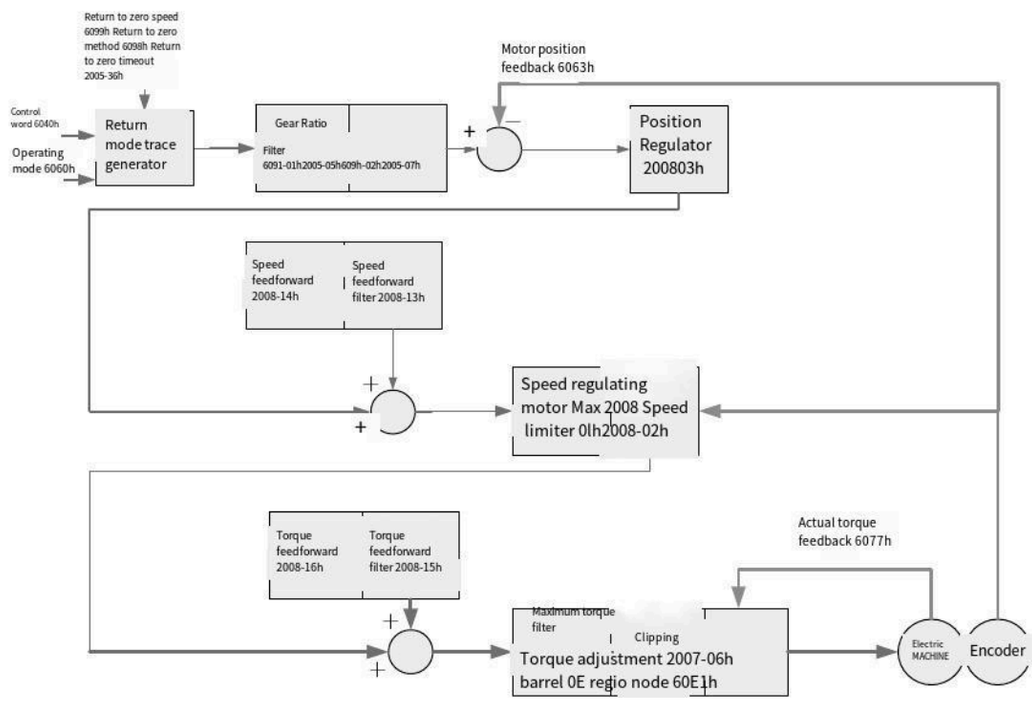
0

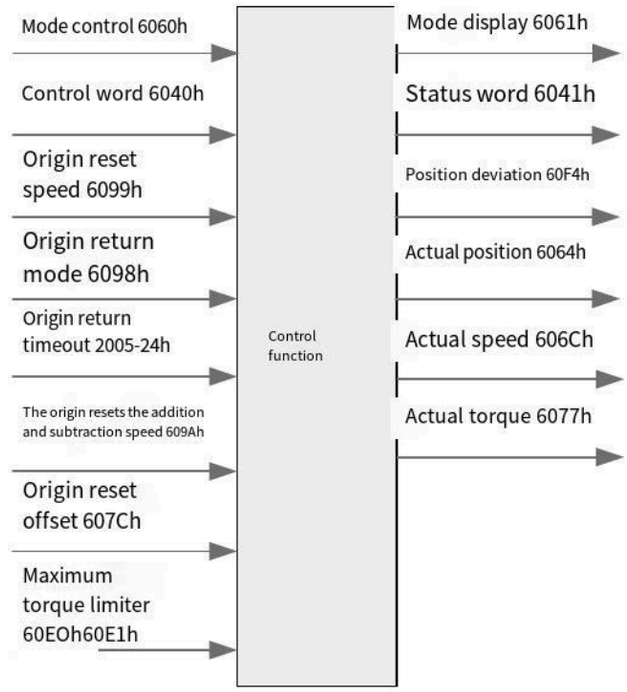
607Ch

= + 607Ch( )

607Ch=0

6.10.1





607F

6.10.2

Control word 6040h		
position.	Name	Description
0	The servo is ready to Switch on	1: effective, 0: ineffective
1	Switch on the main circuit electrical Enable voltage	1: valid, 0: invalid
2	Quick stop	1: invalid, 0: valid
3	Enable operation for servo running	1: valid, 0: invalid
4	start Homing start back to zero	0->1: Boot back to zero 1: Homing back to zero is in progress 1->0: End return to zero
8	Pause Halt	0: The servo presses the bit4 setting to decide whether to boot back to zero or not 1: The servo presses 605Dh to pause.
Status word 6041h		
position.	Name	Description
10	Target reached	0: The target position is not reached 1: Target position reached
12	Homing attained back to zero	0: The return to zero failed 1: return to zero successfully. This flag bit is effective after the target reach signal is set when the servo is running in the return to zero mode
13	Homing error	0: No error occurred in the homing error 1: The return to zero timeout or deviation error occurred
15	Return to zero to complete the Home Find	0: Origin return to zero incomplete 1: The origin return to zero is complete. This flag bit is set when it encounters the origin signal.

Bit0 to bit3 are both 1, indicating that the operation is started

Index (hex)	Subindex (hex)	Name	Access	Data type	Units	Set range	Default
603F	00	Error code	RO	Uint16	-	0 ~ 65535	0
6040	00	Control word	RW	Uint16	-	0 ~ 65535	0
6041	00	Status word	RO	Uint16	-	0~xFFFF	0
6060	00	Operating mode	RW	Int8	-	0 ~ 10	0
6061	00	Pattern display	RO	Int8	-	0 ~ 10	0
6062	00	Location instruction	RO	Int32	Instruction unit	-	-
6064							
6067							
6068							
6077	00	Actual torque	RO	Int16	0.1%	- 5000 ~ 5000	0
606C	00	Actual velocity	RO	Int32	Unit of instruction /s	-	-
6098							
6099							
609A							
2005							
60F4							

NOTE

6.10.3

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index	Subindex	Name	Description
2005	24	Origin reset timeout	A zero timeout warning will be reported if the return to zero is not completed within this time (Er.601)

2

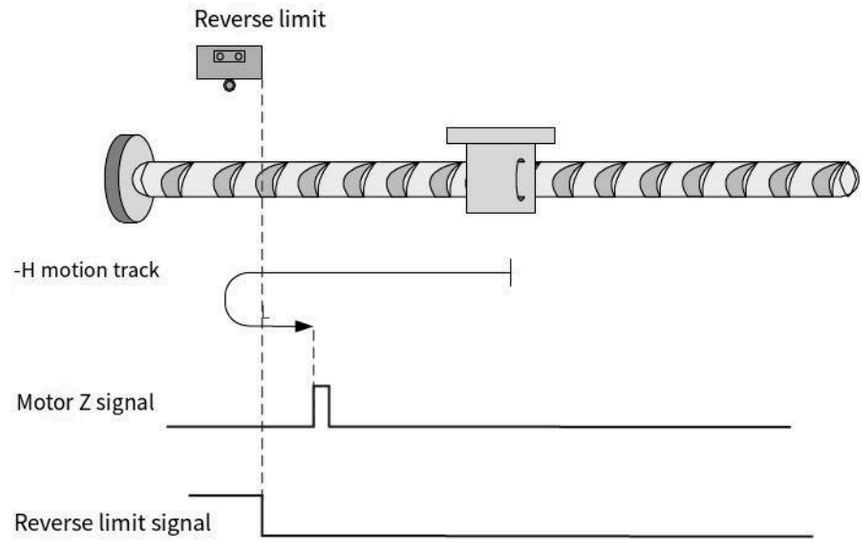
index	Subindex	Name	Description
60E6	00	Current location calculated	The 60E6 determines whether the user uses absolute or relative return to zero in an incremental system. 60E6= 0(absolute return to zero) : After the return to zero is complete, the position feedback 6064 is set to the origin offset 607C 60E6=1(relative return to zero) : After the return to zero is complete, position feedback 6064 superimposes position bias 607C on the original basis

6.10.4

① 6098h=1

Z

a



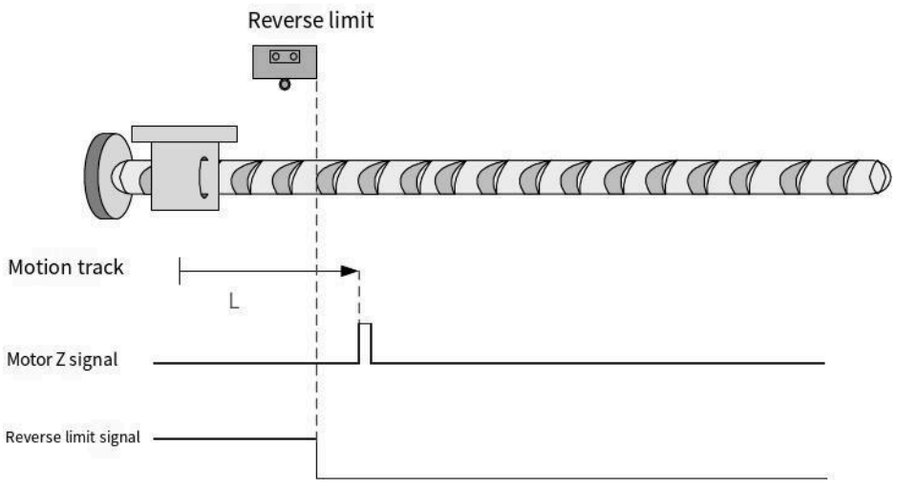
H
6099-1h
L
6099-2h
NOTE

N-OT=0 N-OT

N-OT

Z

b

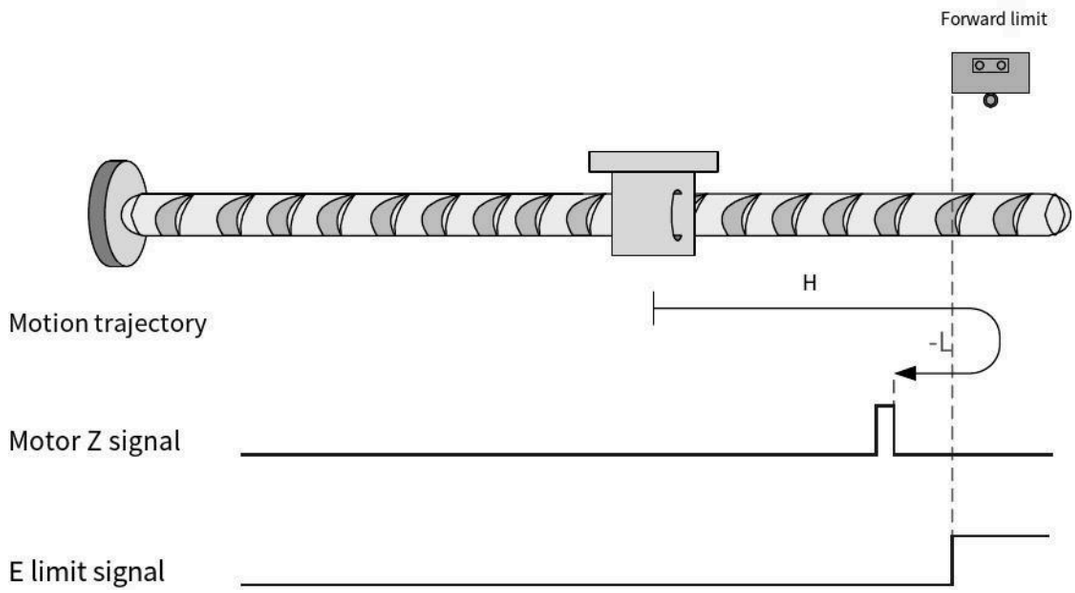


N-OT=1 N-OT Z

② 6098h=2

Z

a

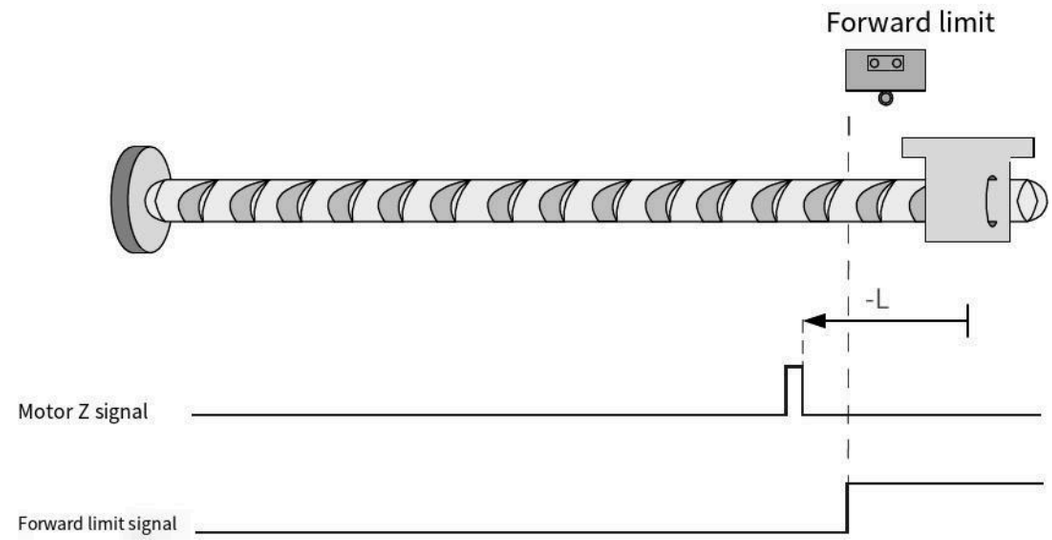


P-OT=0 P-OT

P-OT

Z

b

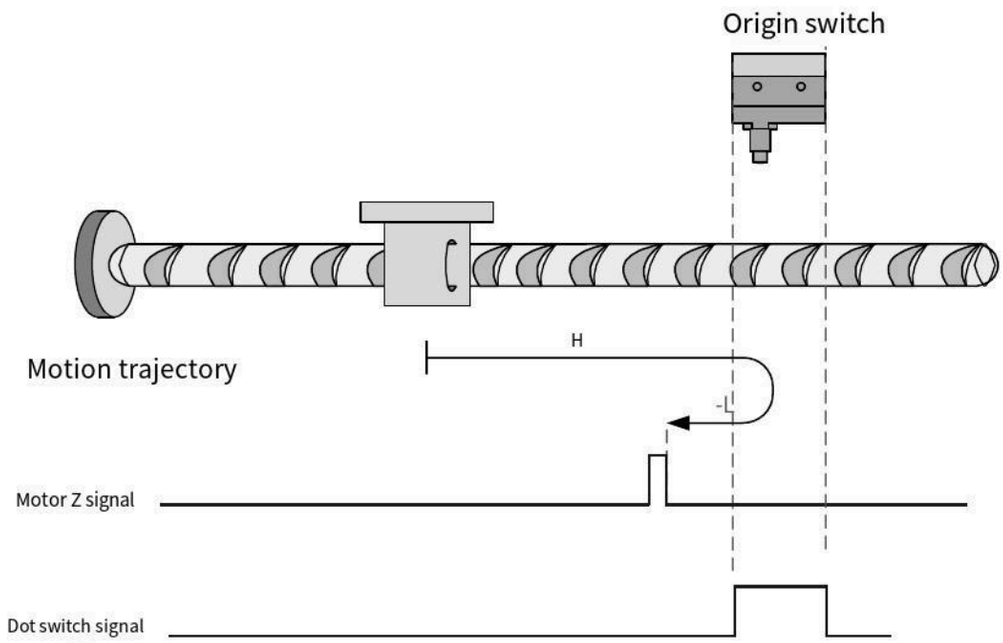


P-OT=1 P-OT Z ③ 6098h=3

Z

(HW)

a

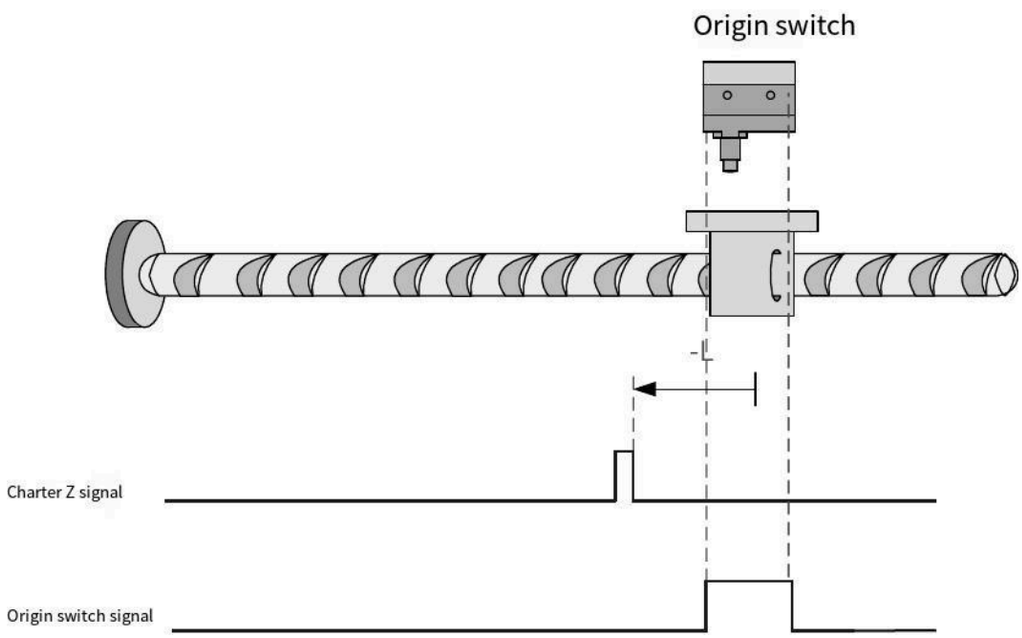


HW=0 HW

HW

Z

b



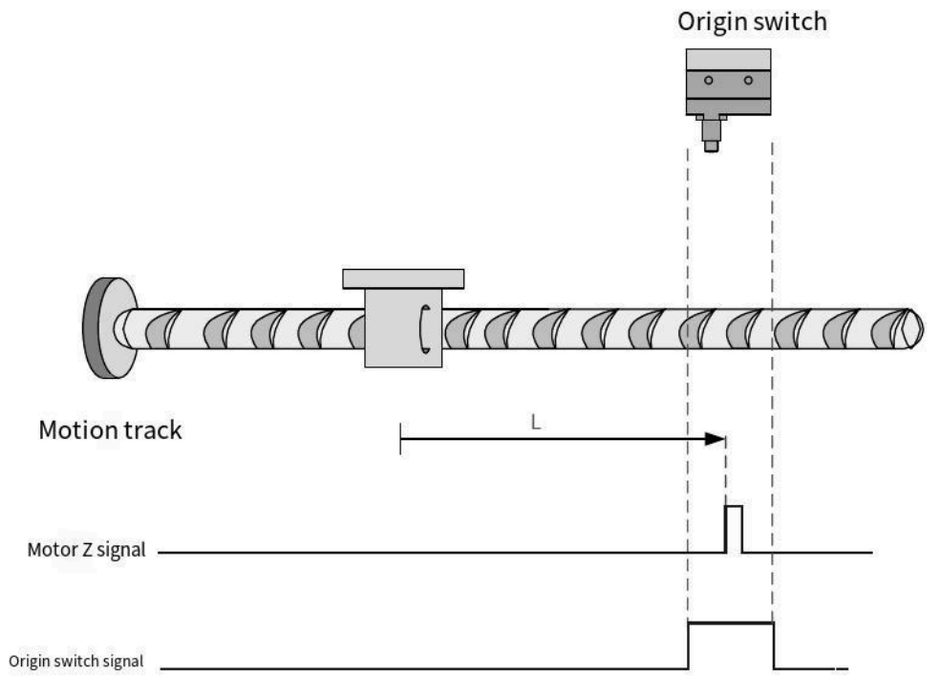
HW=1 HW Z

④ 6098h = 4

Z

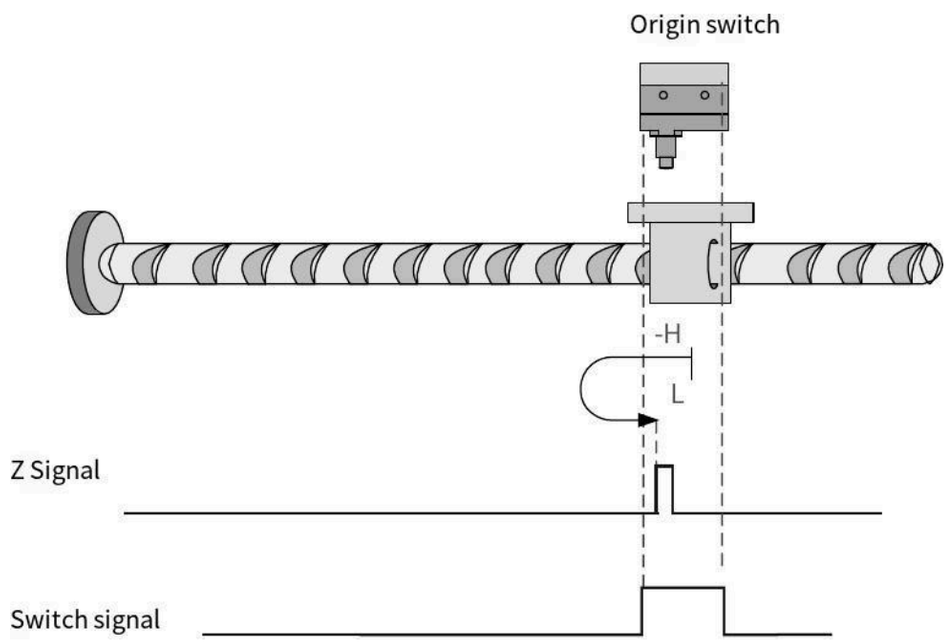
(HW)

a



HW=0 HW Z

b



HW=1 HW

HW

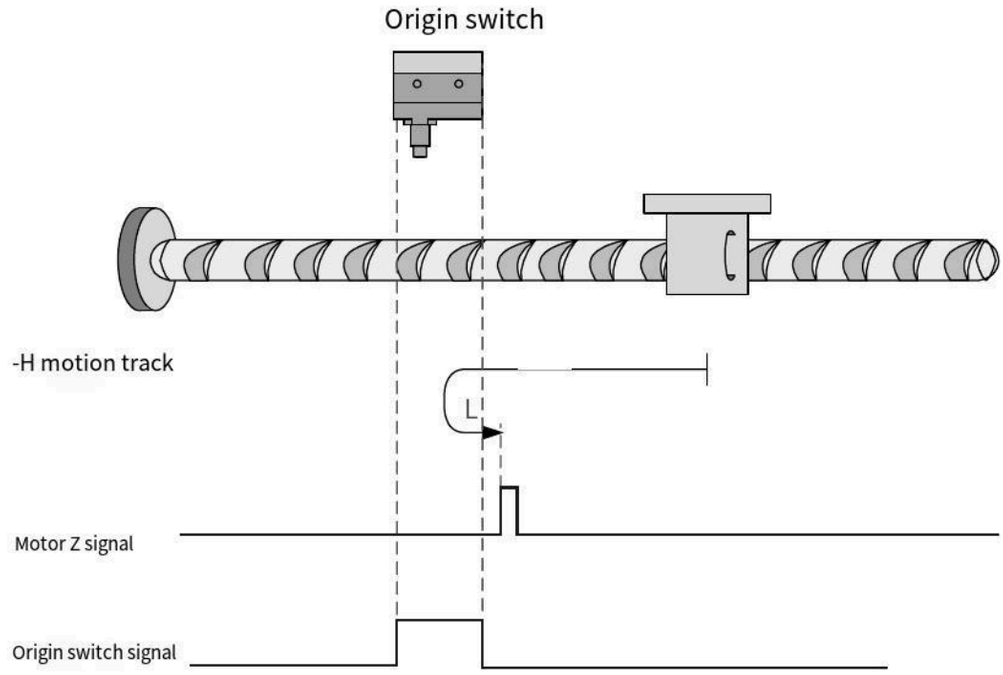
Z

⑤ 6098h=5

Z

(HW)

a

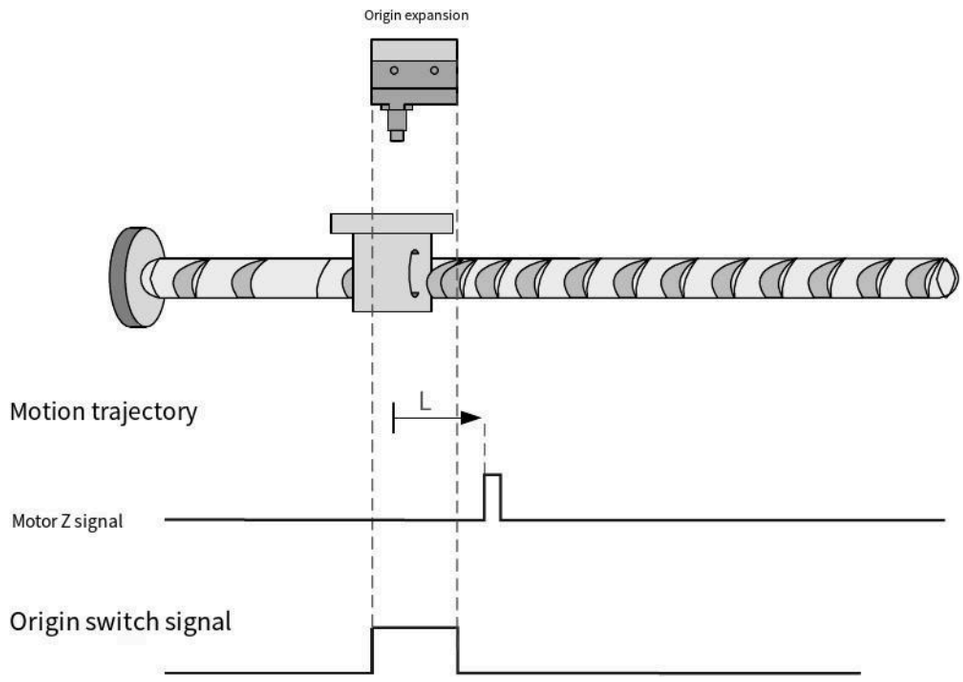


HW=0 HW

HW

Z

b



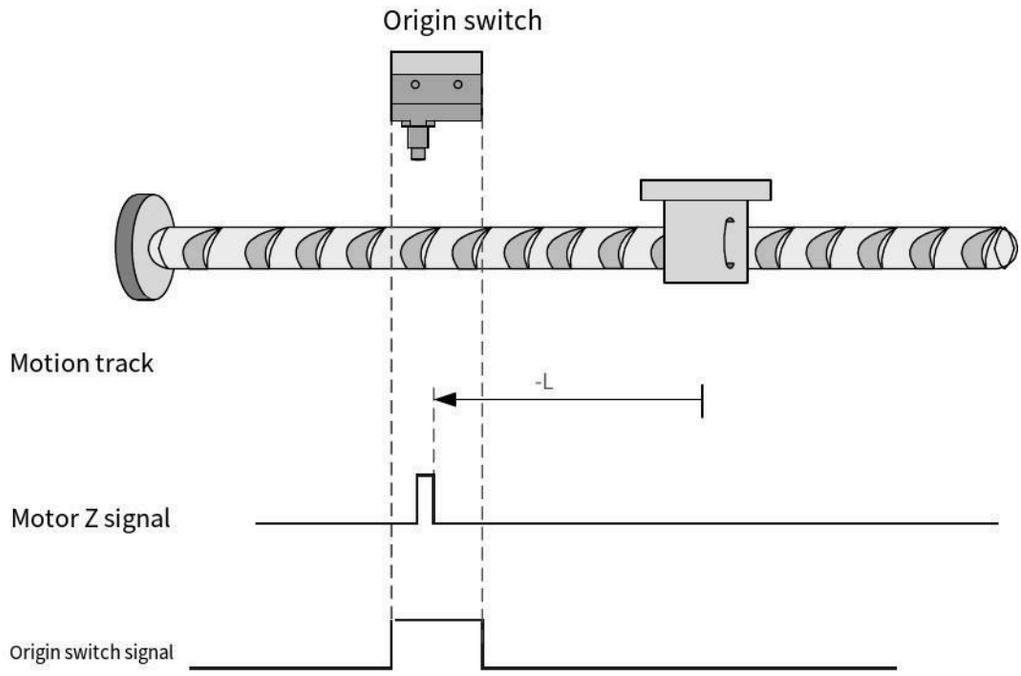
HW=1 , HW Z

⑥ 6098h =6

Z

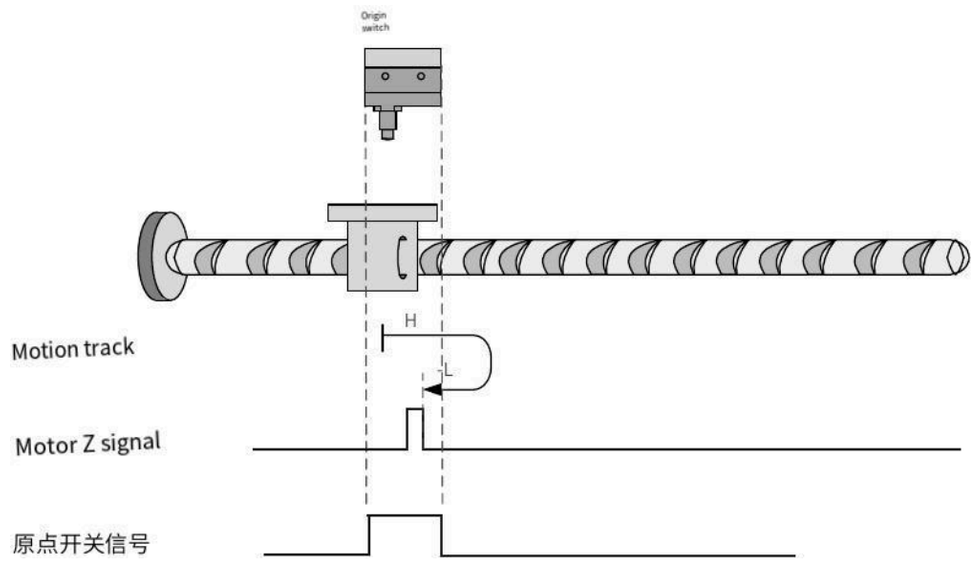
(HW)

a



HW=0 HW Z

b



HW=1 HW

HW

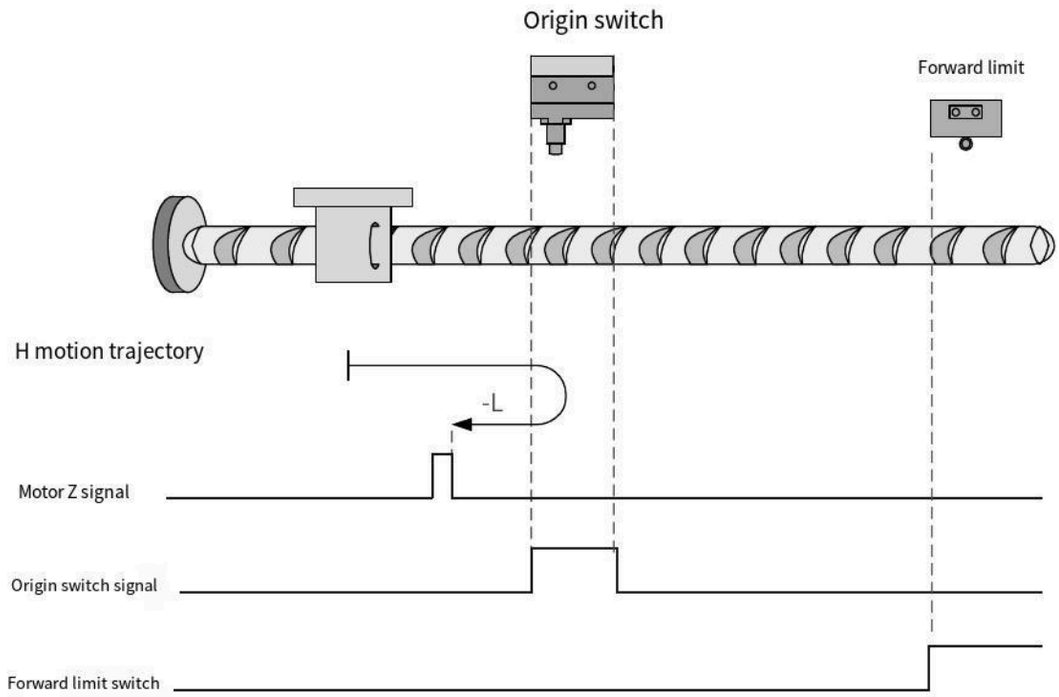
Z

⑦ 098h = 7

Z

(HW)

a

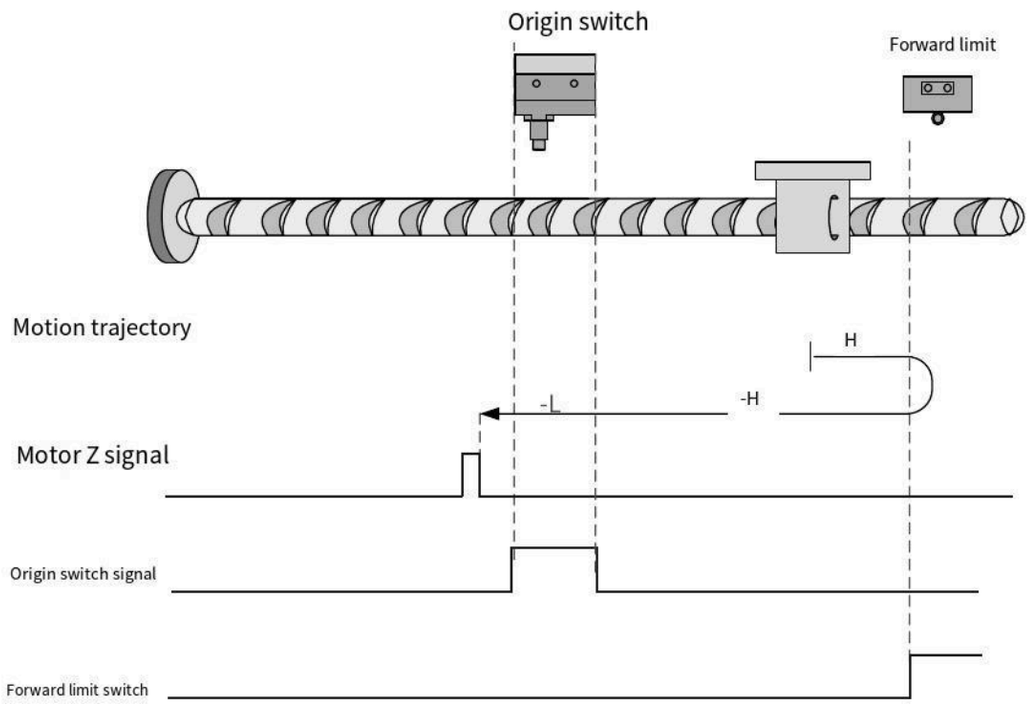


HW=0

HW

HW Z

b

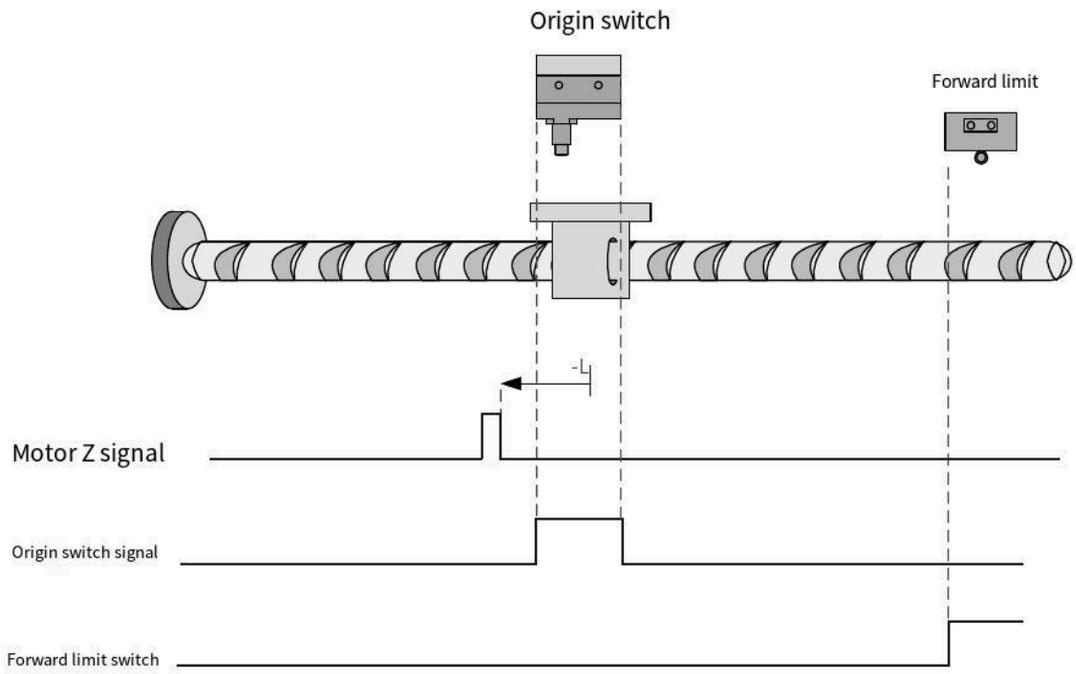


HW=0

HW

HW Z

c



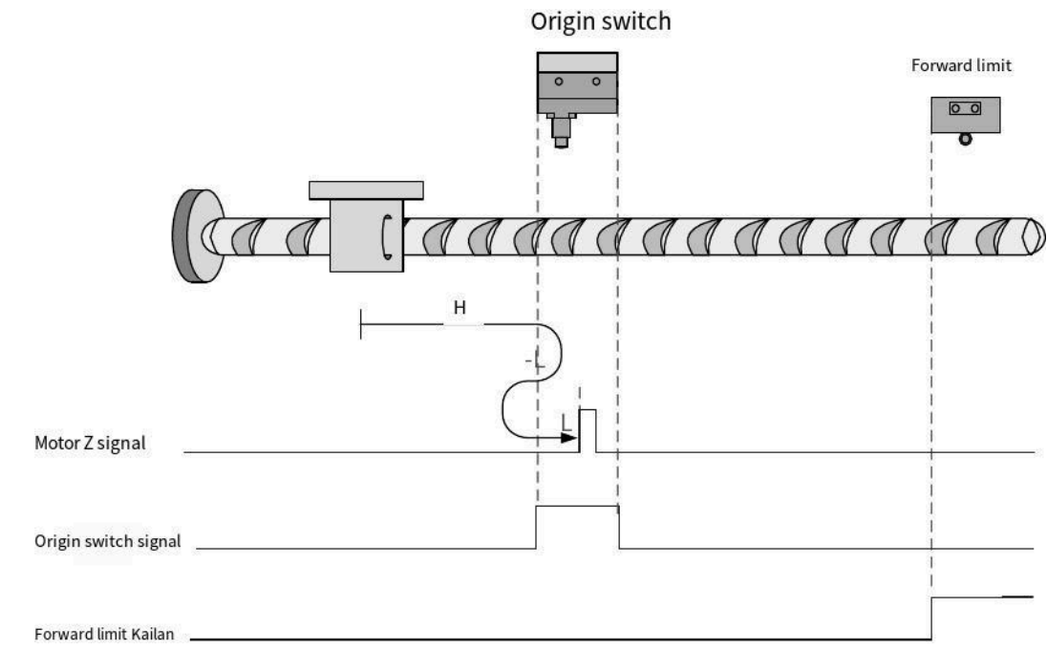
HW=1 HW Z

⑧ 6098h =8

Z

(HW)

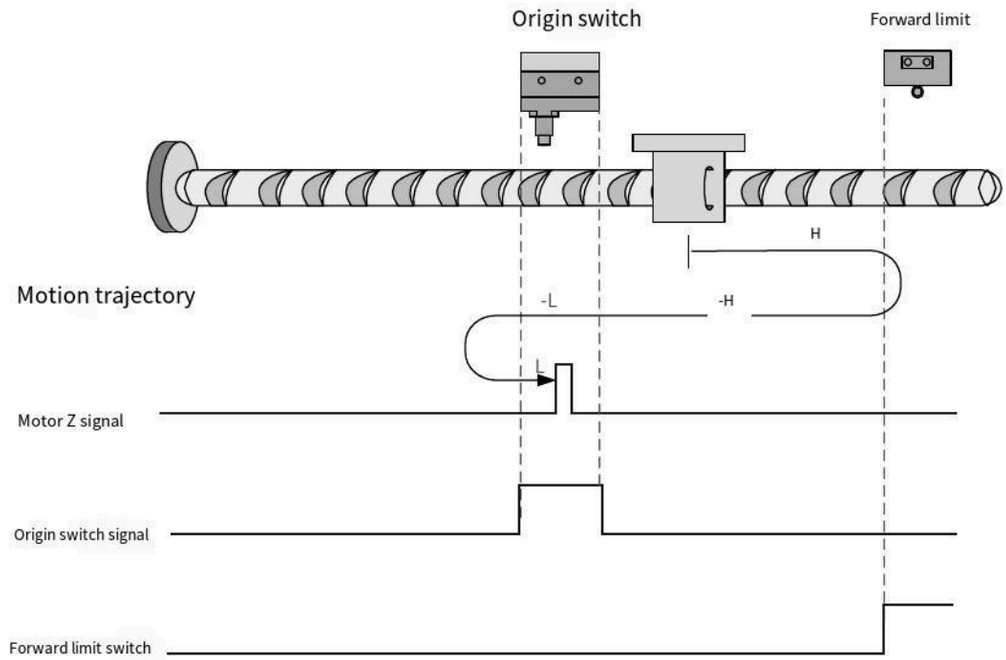
a



HW=0 HW

HW HW Z

b

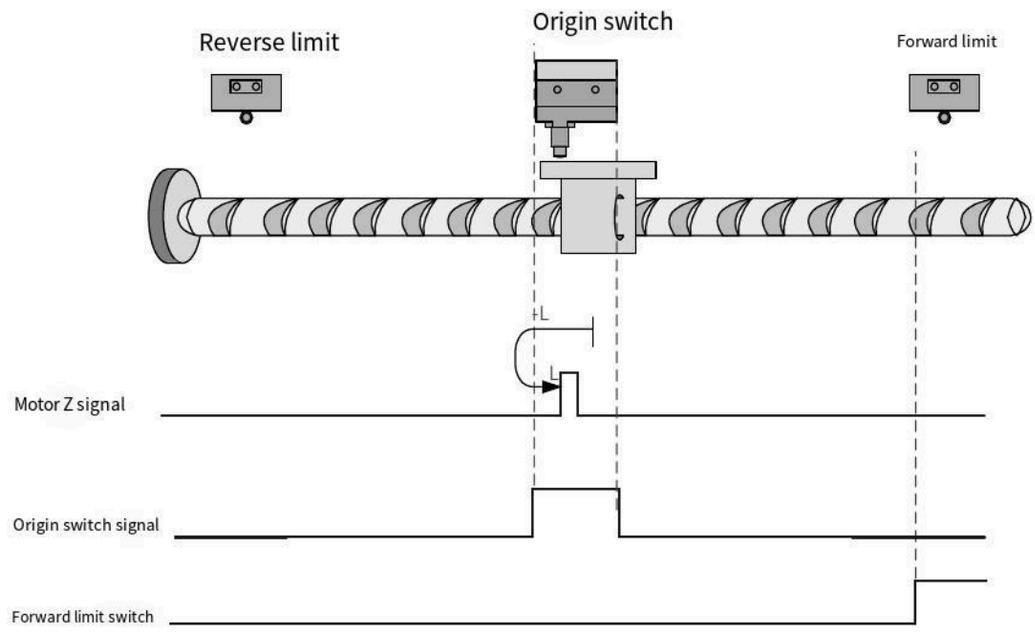


HW=0

HW

HW HW Z

c



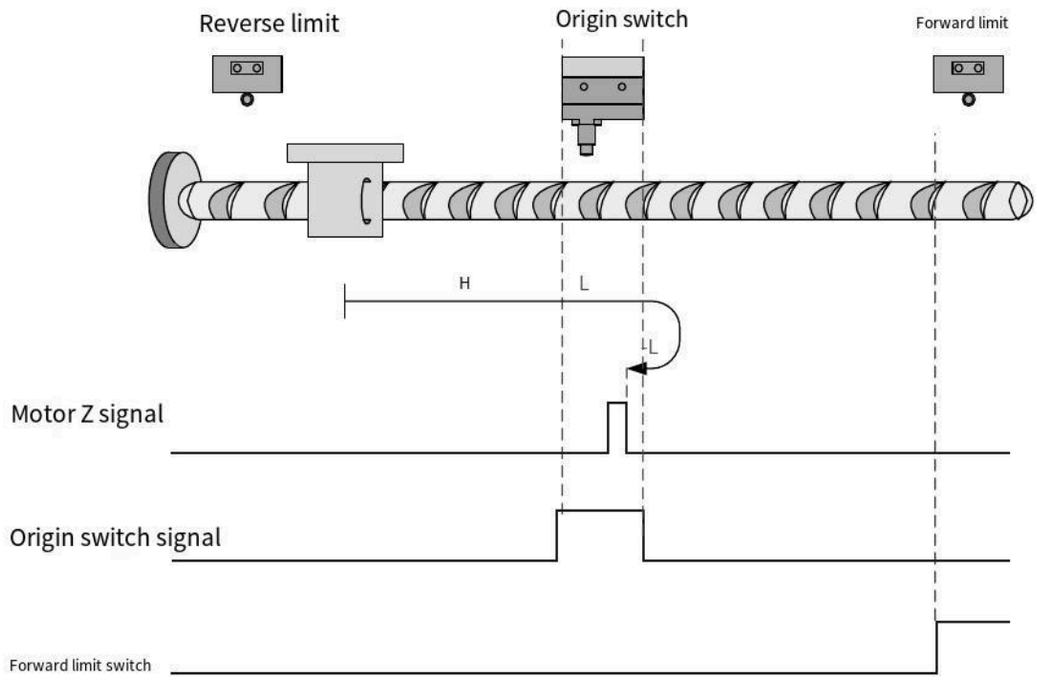
HW=1 HW HW Z

⑨ 6098h =9

Z

(HW)

a

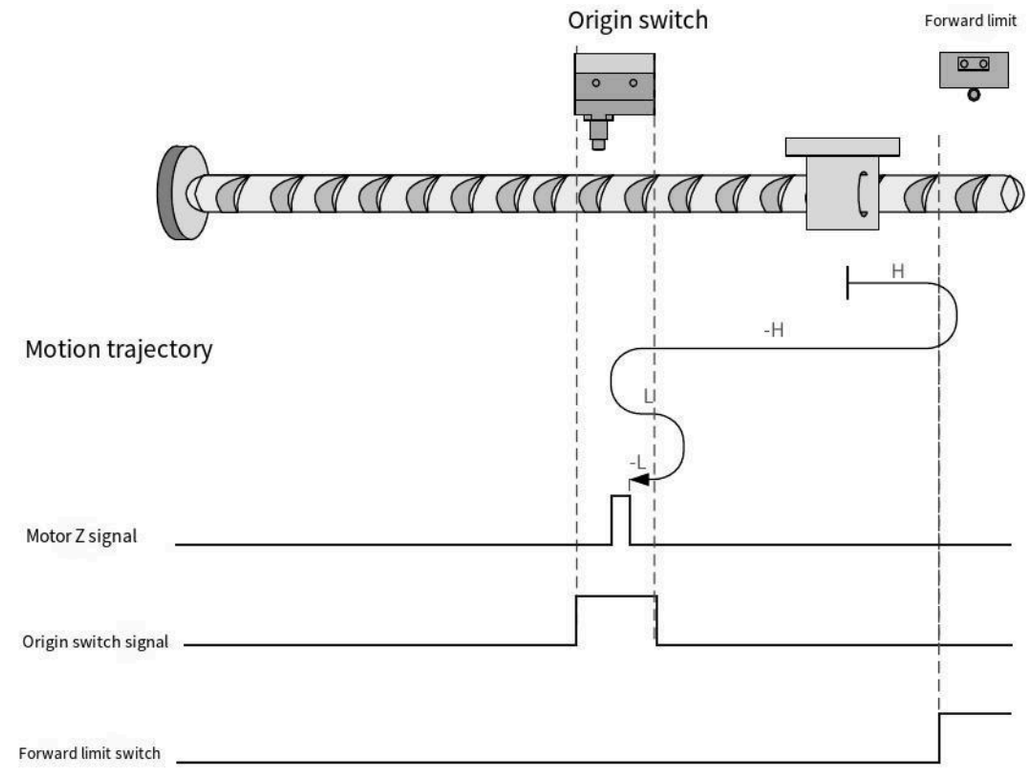


HW=0

HW

HW HW Z

b

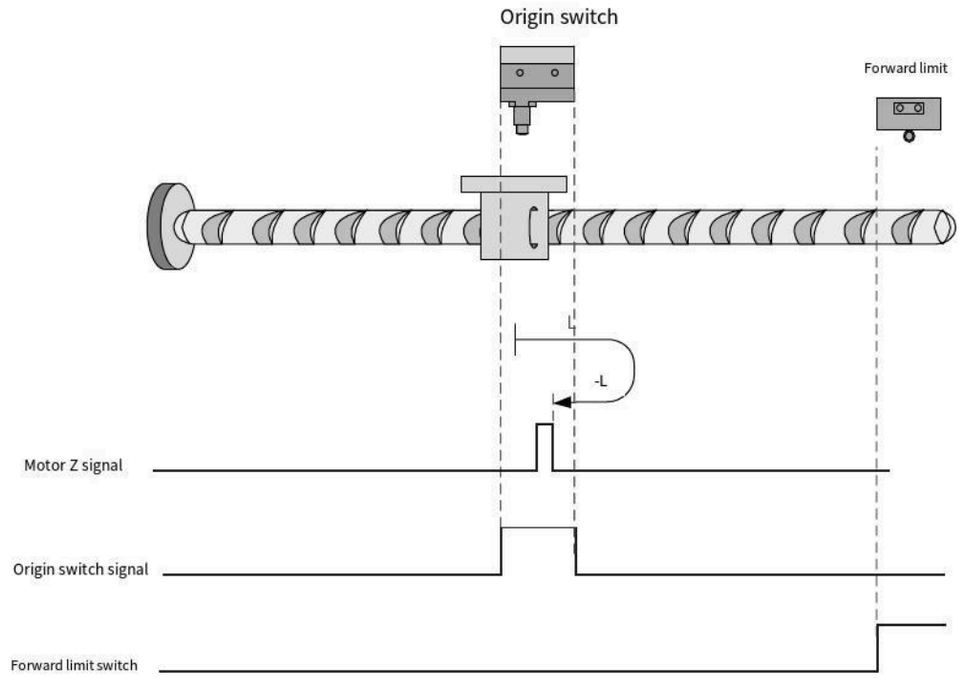


HW=0

HW

HW HW Z

c



HW=1 HW

HW

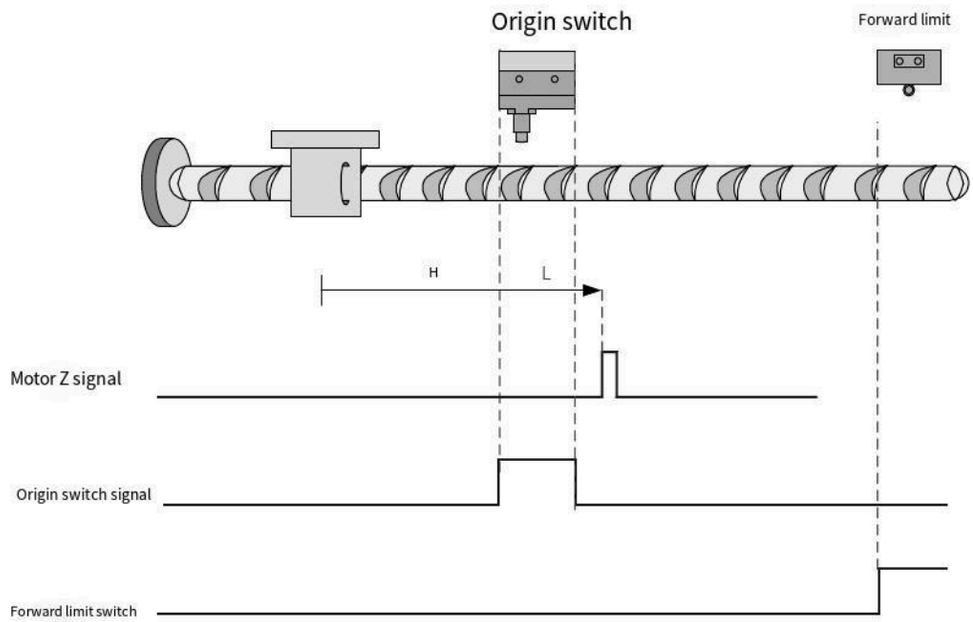
Z

⑩ 6098h =10

Z

(HW)

a



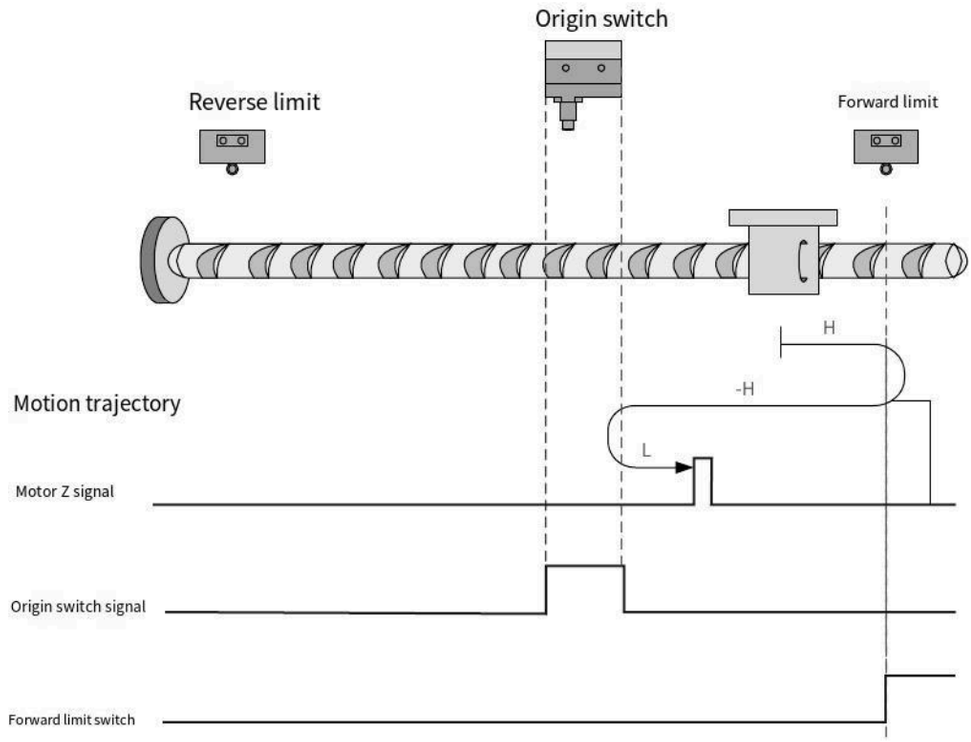
HW=0

HW

HW

Z

b

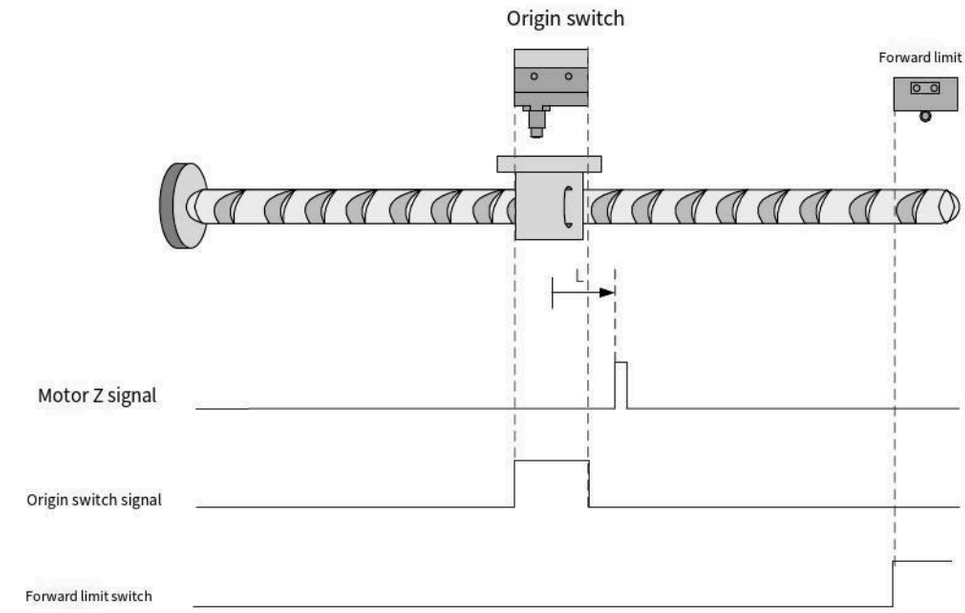


HW=0

HW

HW Z

c



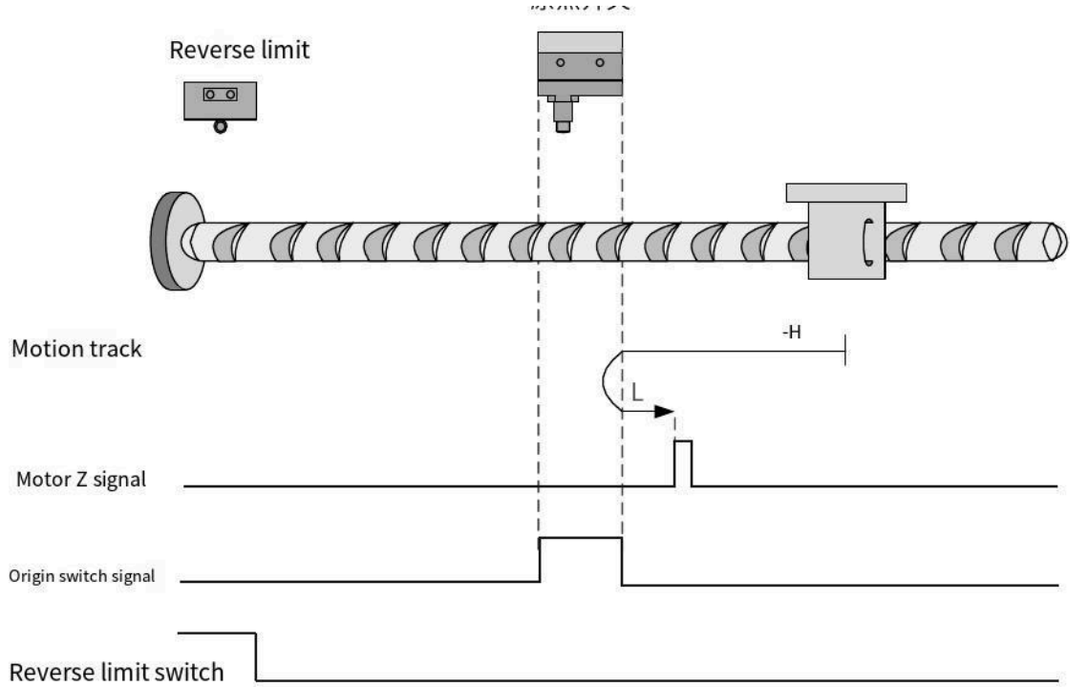
HW=1 HW Z

⑪ 16098h =11

Z

(HW)

a

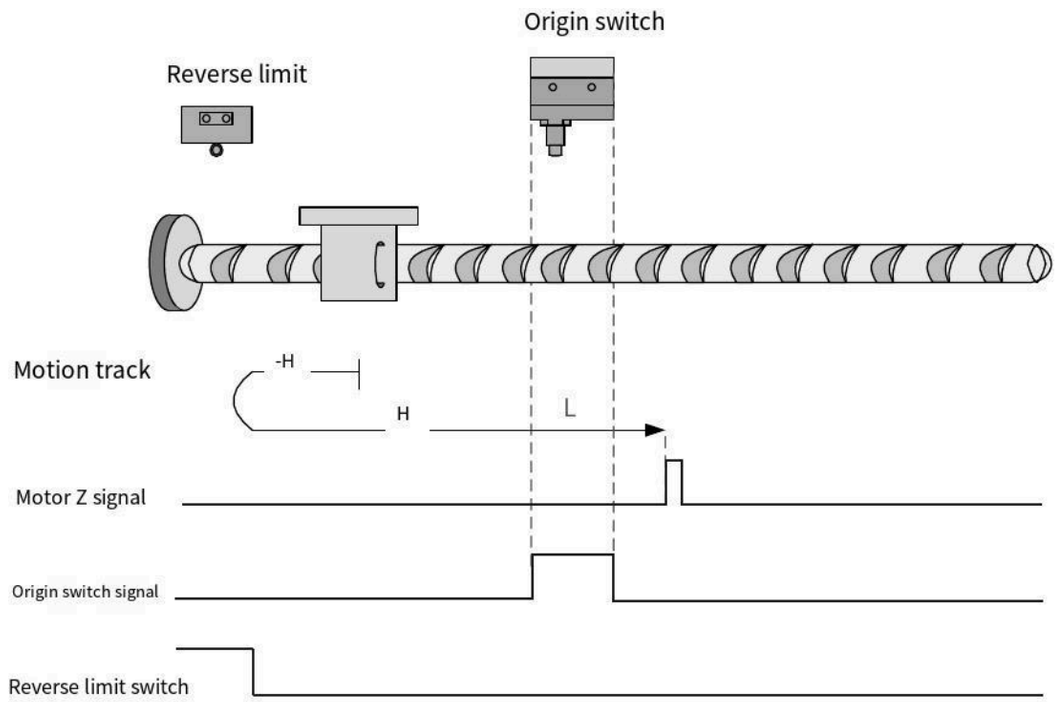


HW=0

HW

HW Z

b

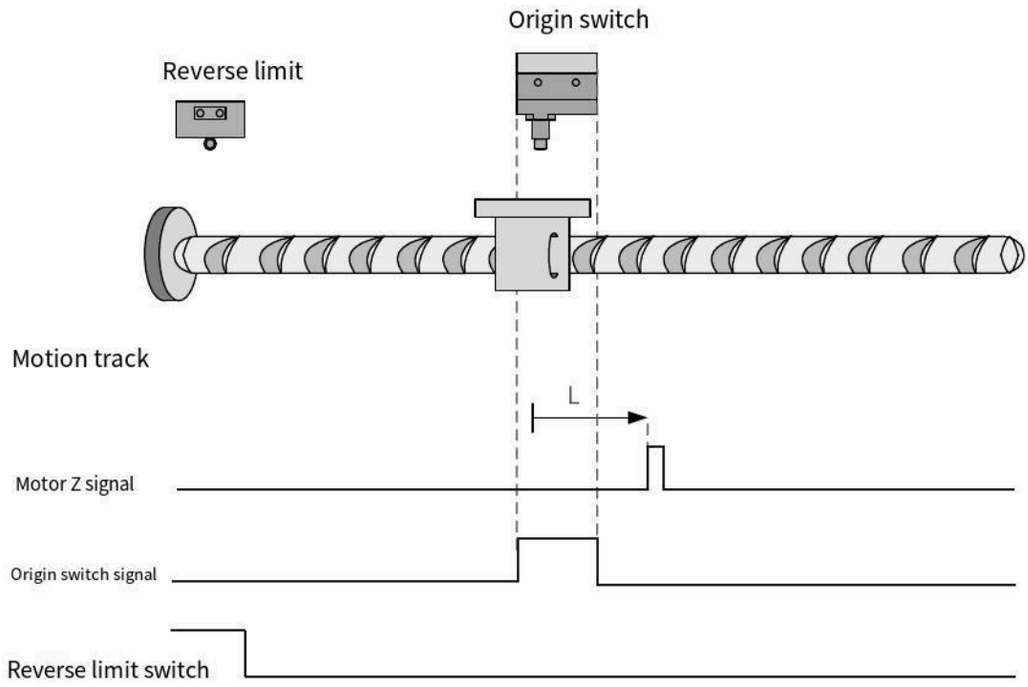


HW=0

HW

HW Z

c



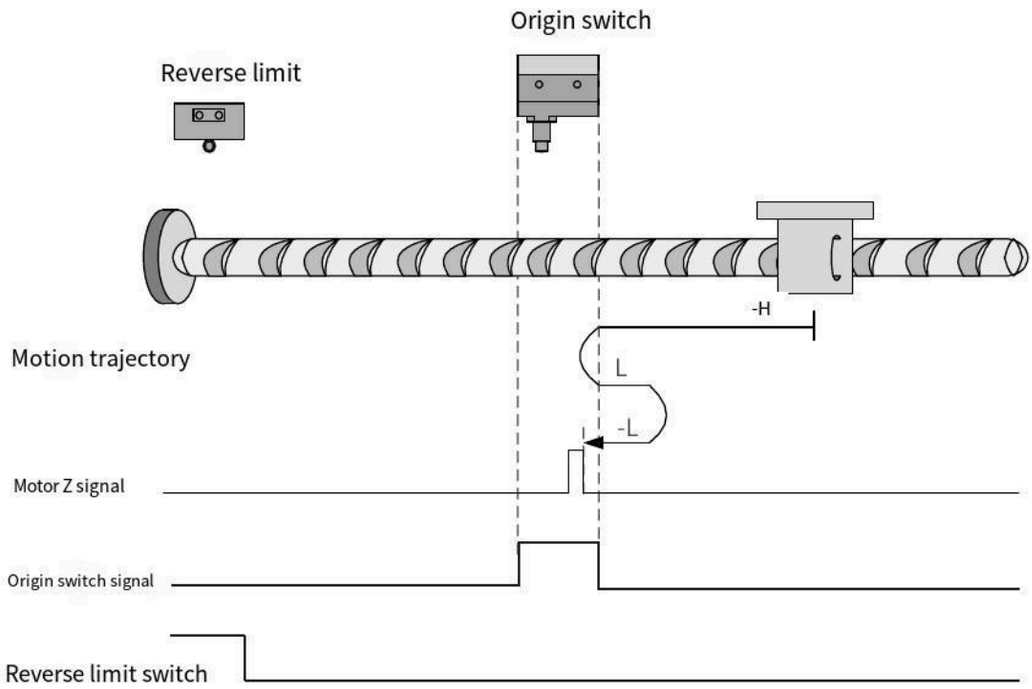
HW=1 HW Z

⑫ 6098h =12

Z

(HW)

a

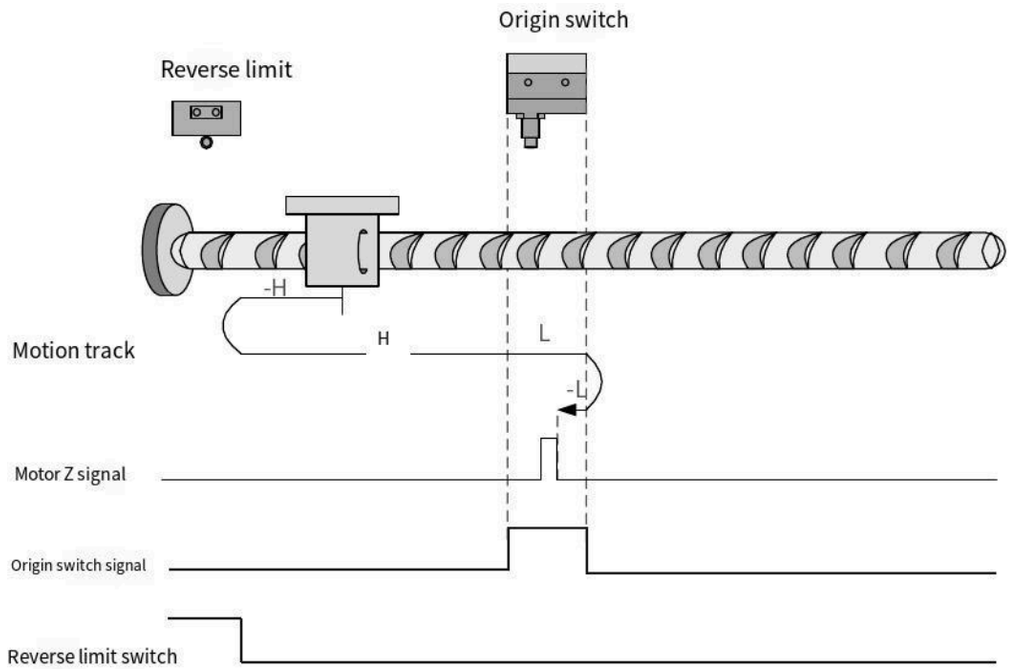


HW=0

HW

HW HW Z

b

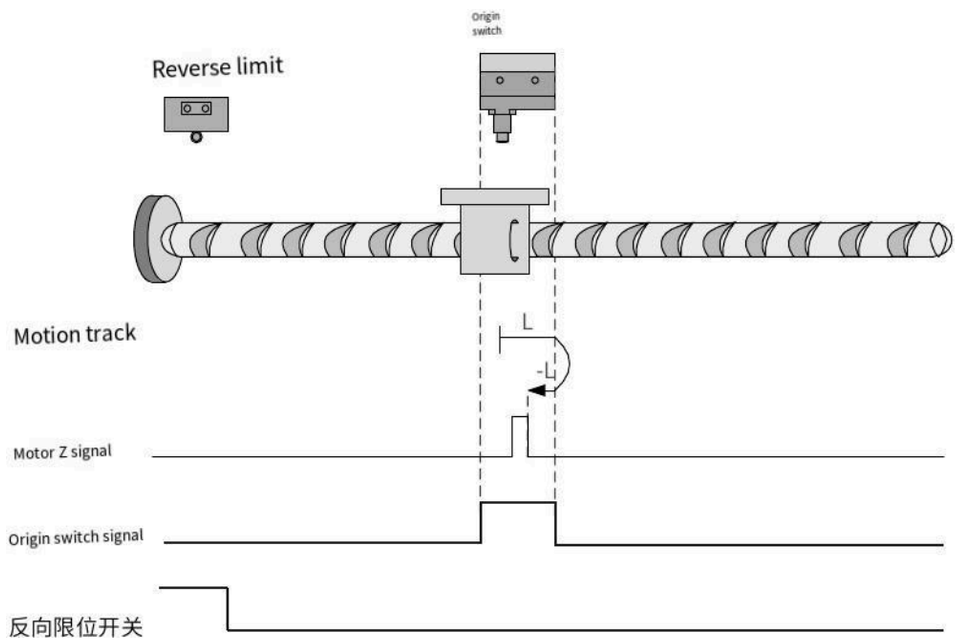


HW=0

HW

HW HW Z

c



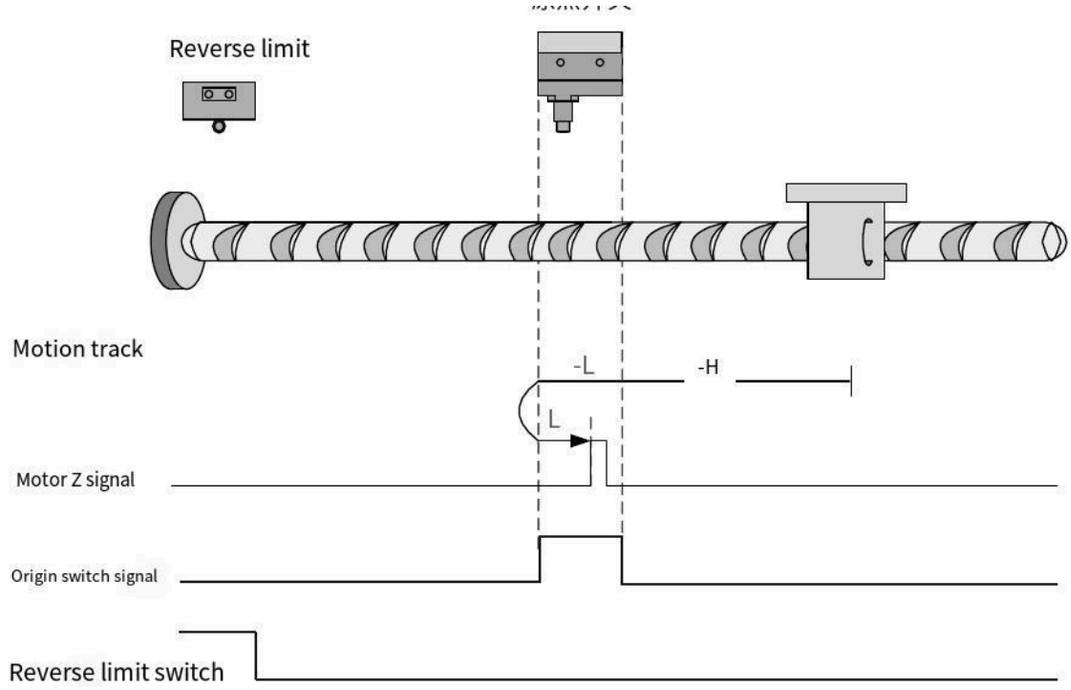
HW=1 HW HW Z

⑬ 6098h =13

Z

(HW)

a

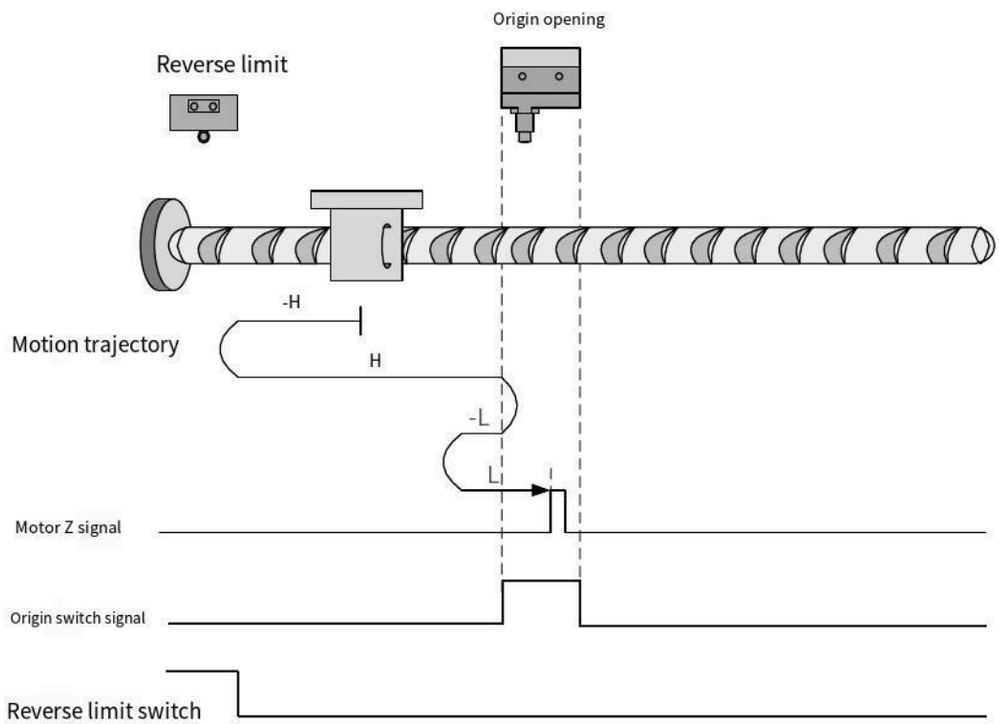


HW=0

HW

HW HW Z

b

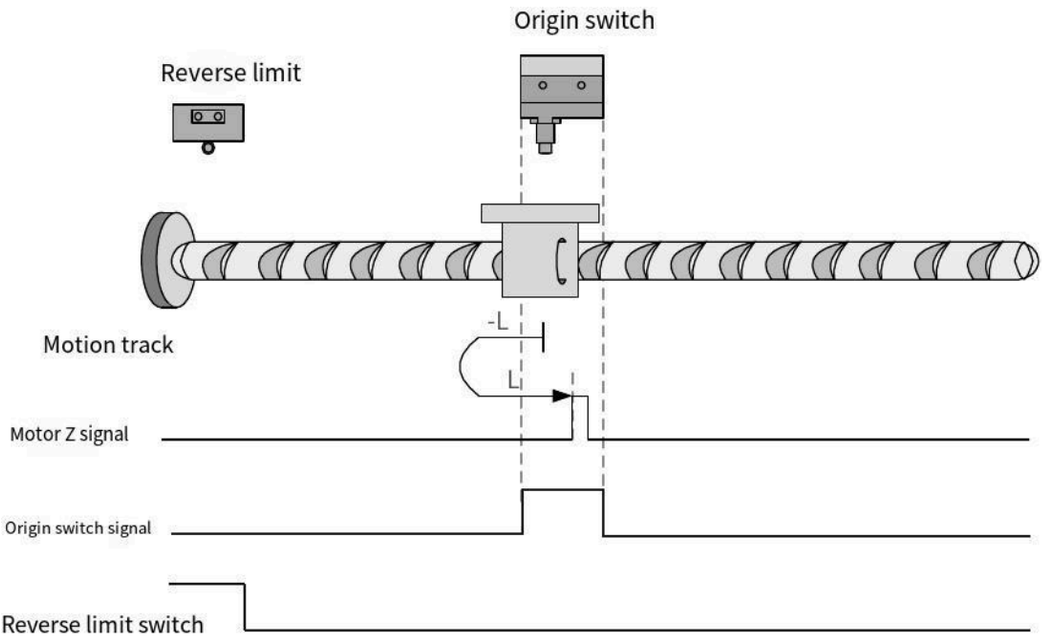


HW=0

HW

HW HW Z

c



HW=1 HW

HW

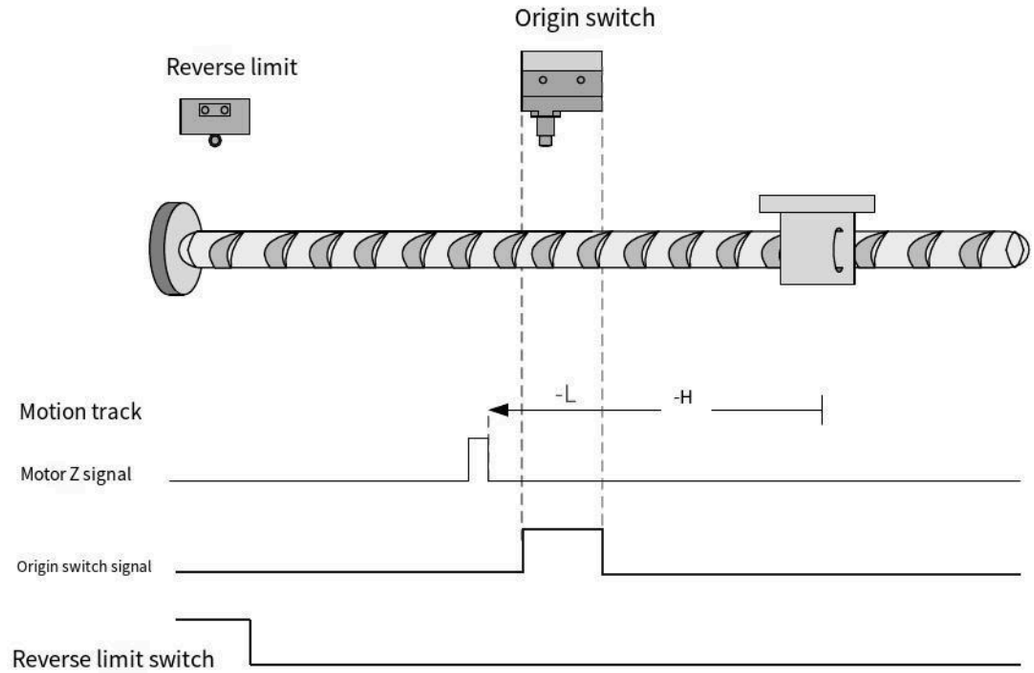
Z

⑭ 6098h =14

Z

(HW)

a



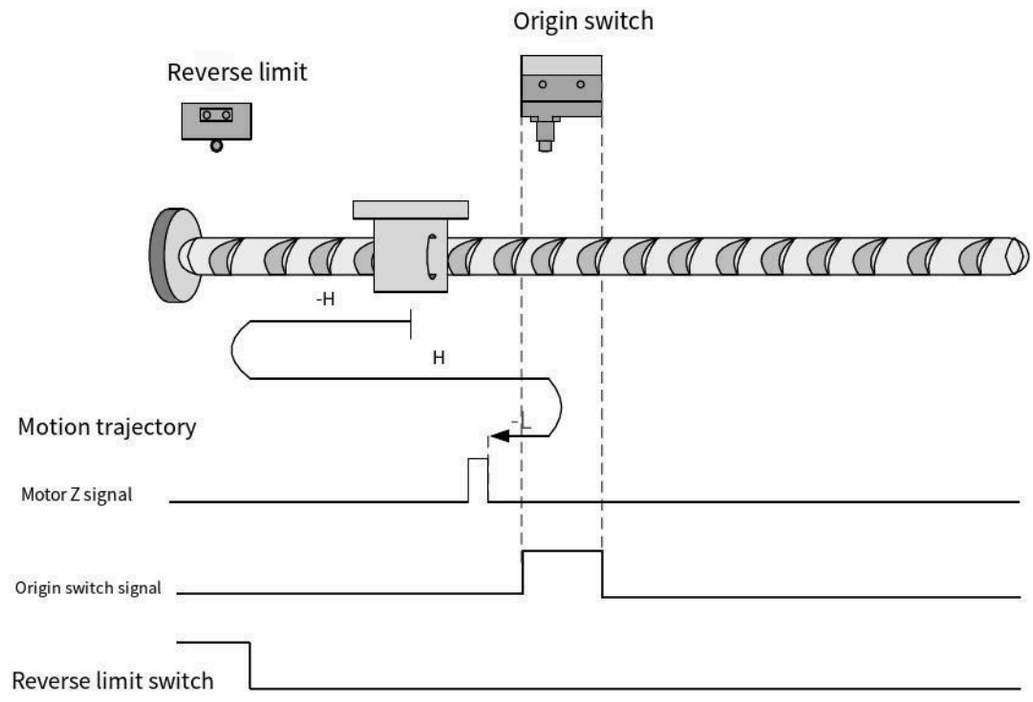
HW=0

HW

HW

Z

b

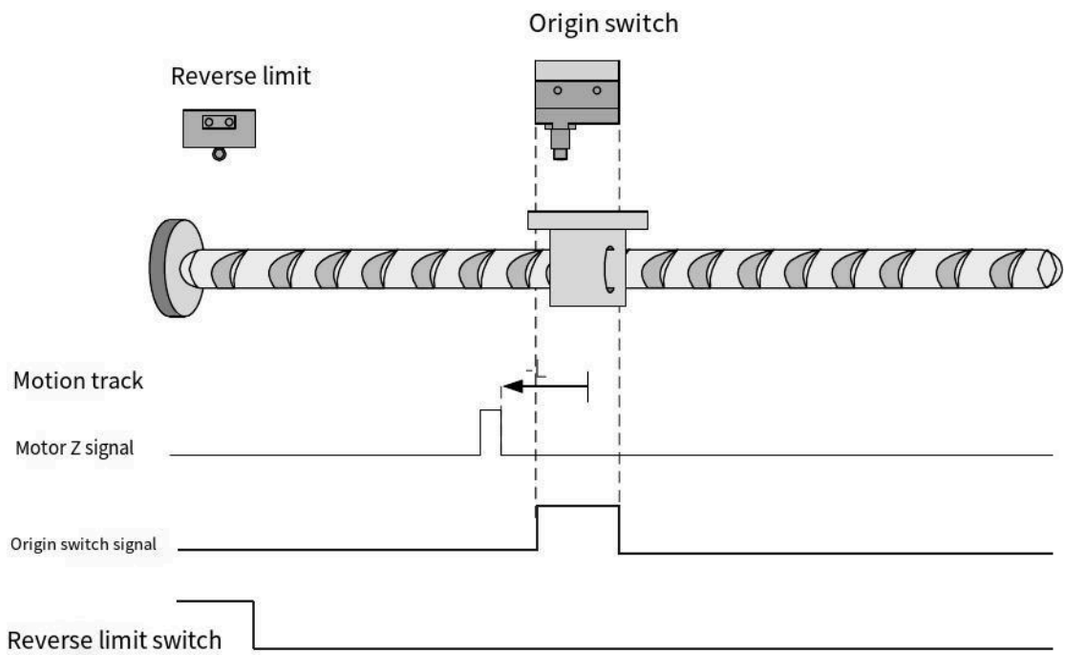


HW=0

HW

HW Z

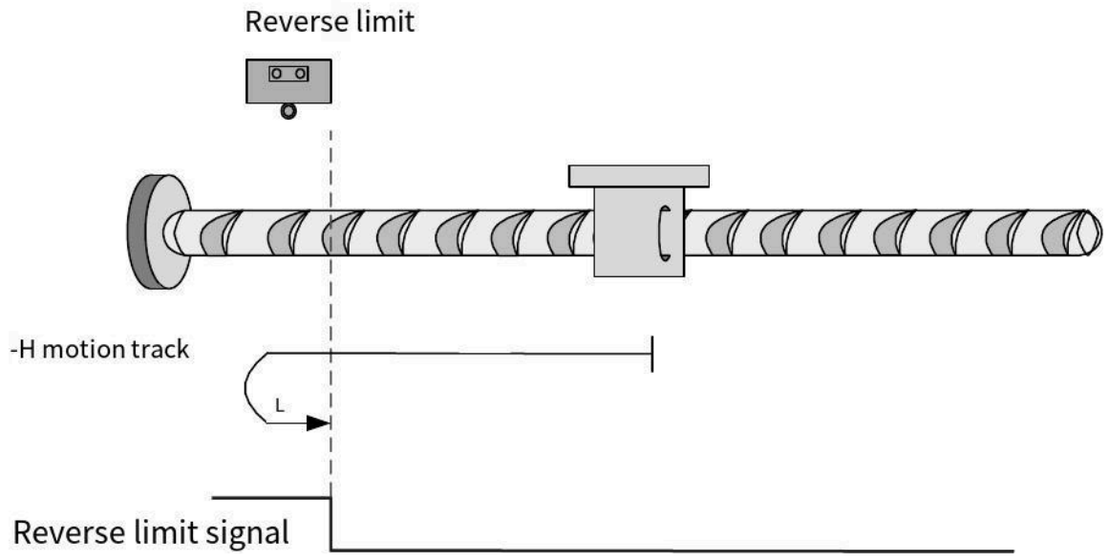
c



HW=1 HW Z

⑮ 6098h=17

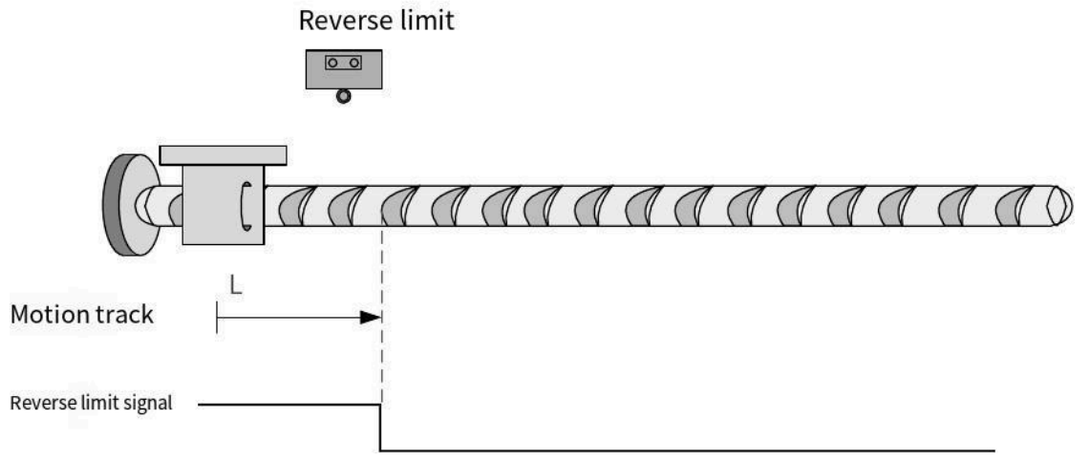
a



N-OT=0 N-OT

N-OT

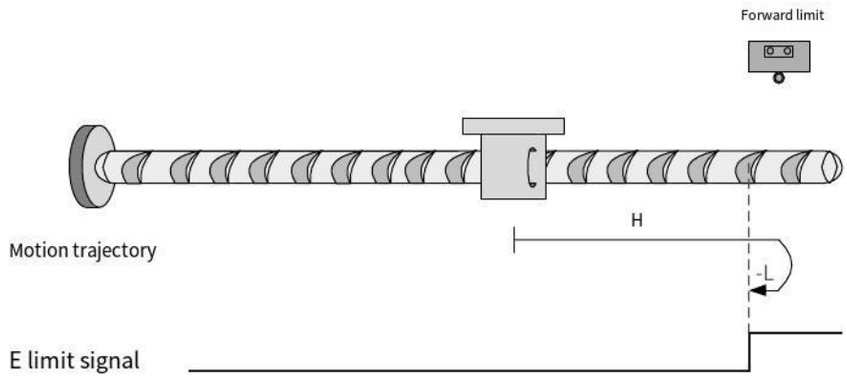
b



N-OT=1 N-OT

⑯ 6098h=18

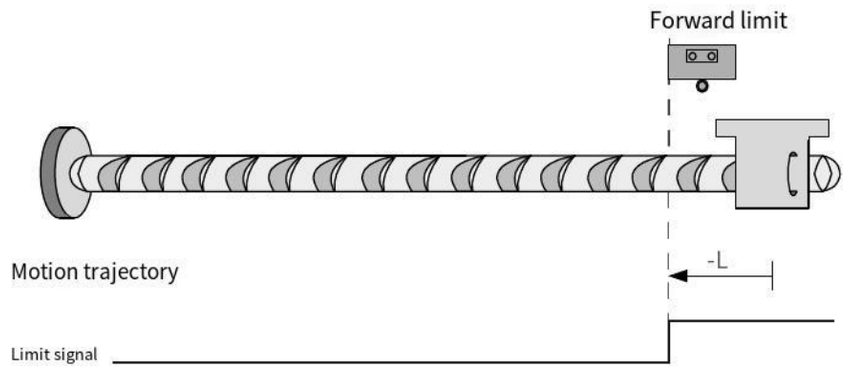
a



P-OT=0 P-OT

P-OT

b



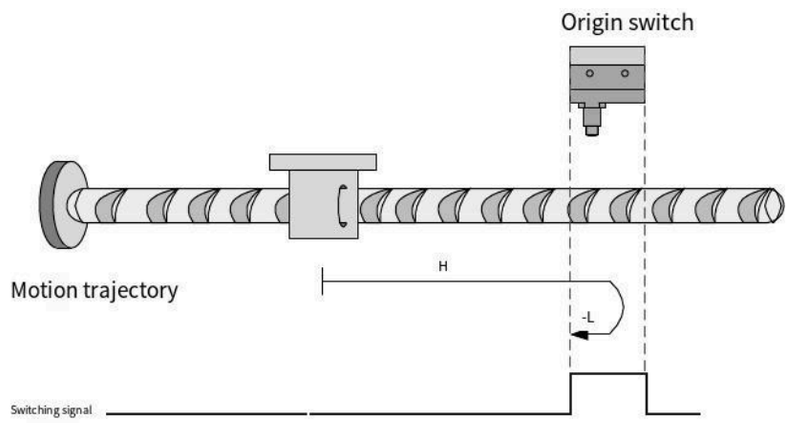
P-OT=1 P-OT

⑰ 6098h=19

(HW)

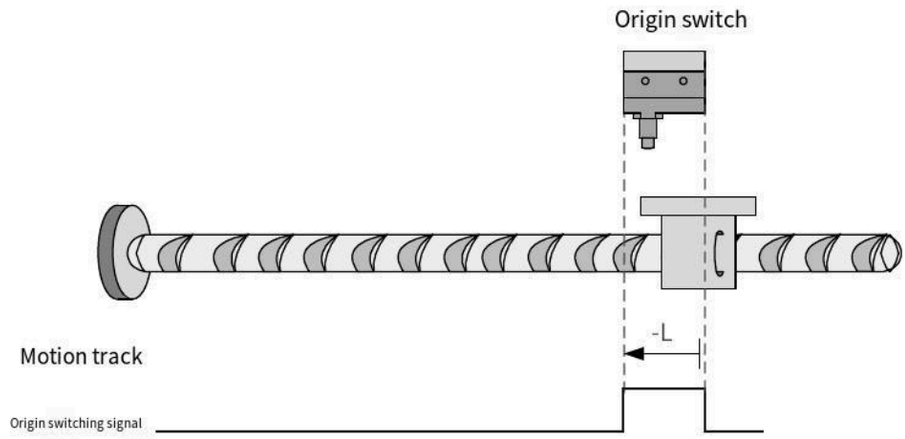
(HW)

a



HW=0 HW HW

b



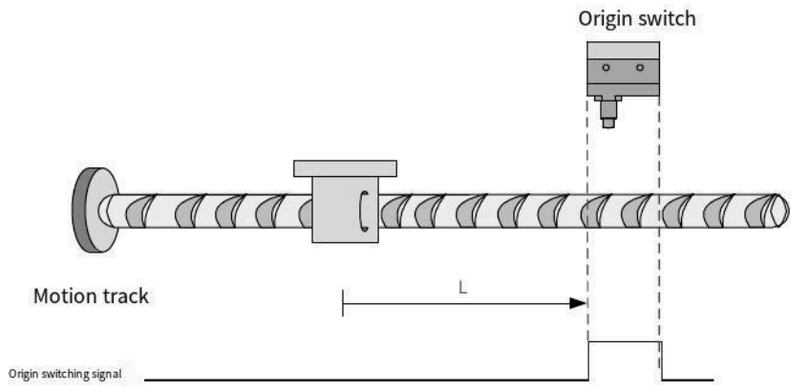
HW=1 HW

⑱ 6098h = 20

(HW)

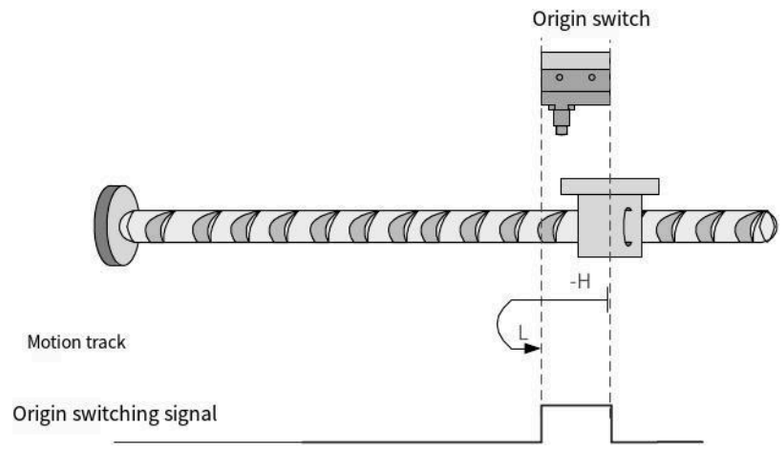
(HW)

a



HW=0 HW

b



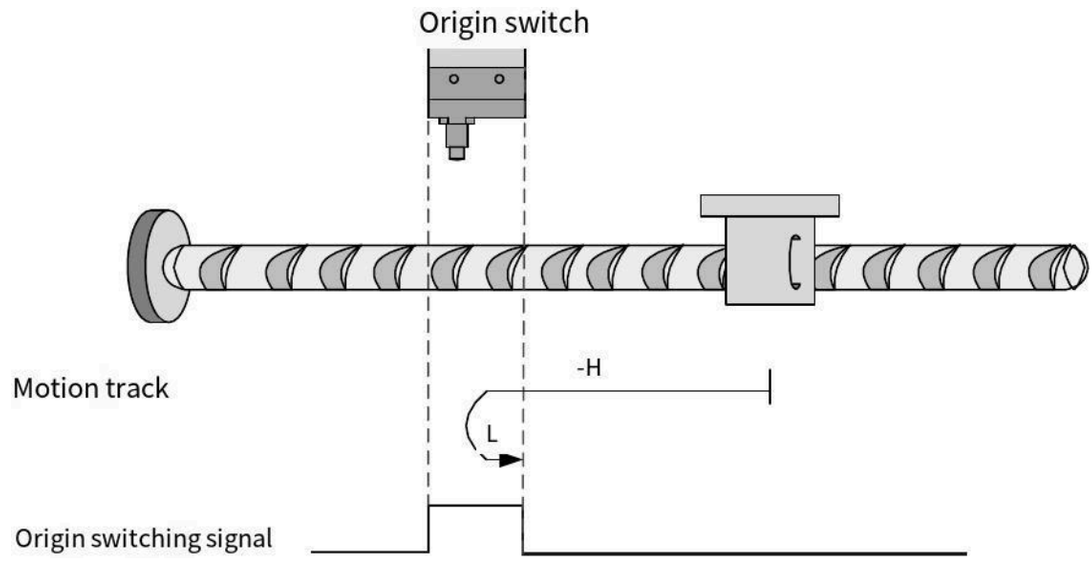
HW=1 HW HW

6098h=21
⑲

(HW)

(HW)

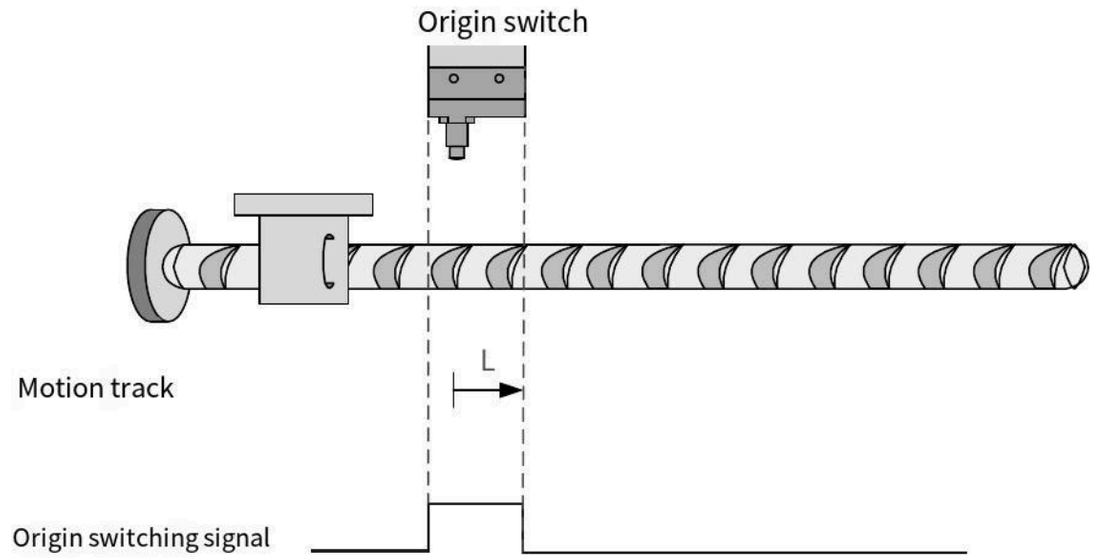
a



HW=0 HW

HW

b



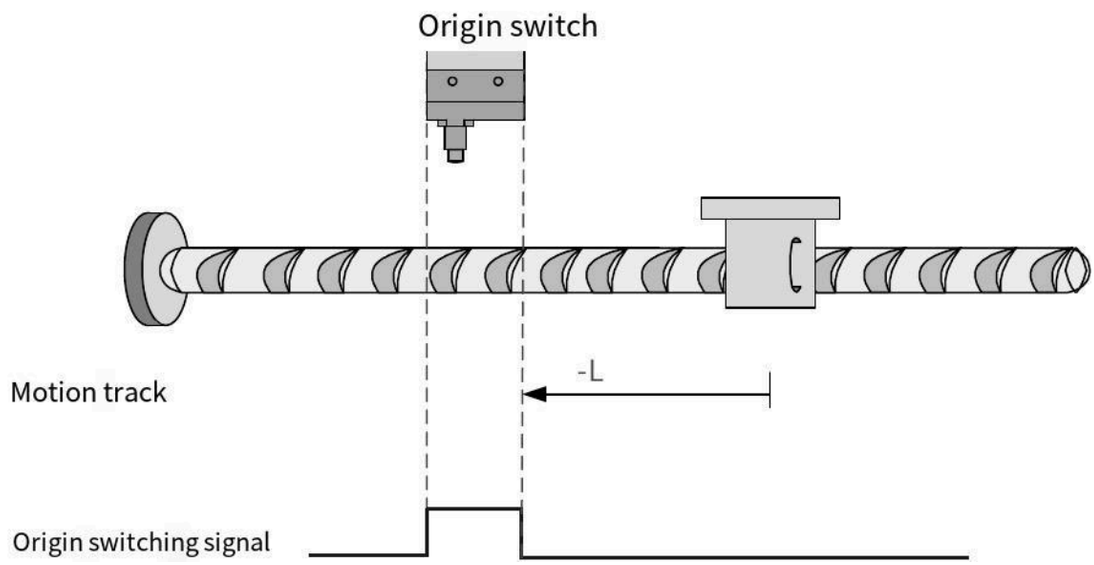
HW=1 , HW

6098h =22

(HW)

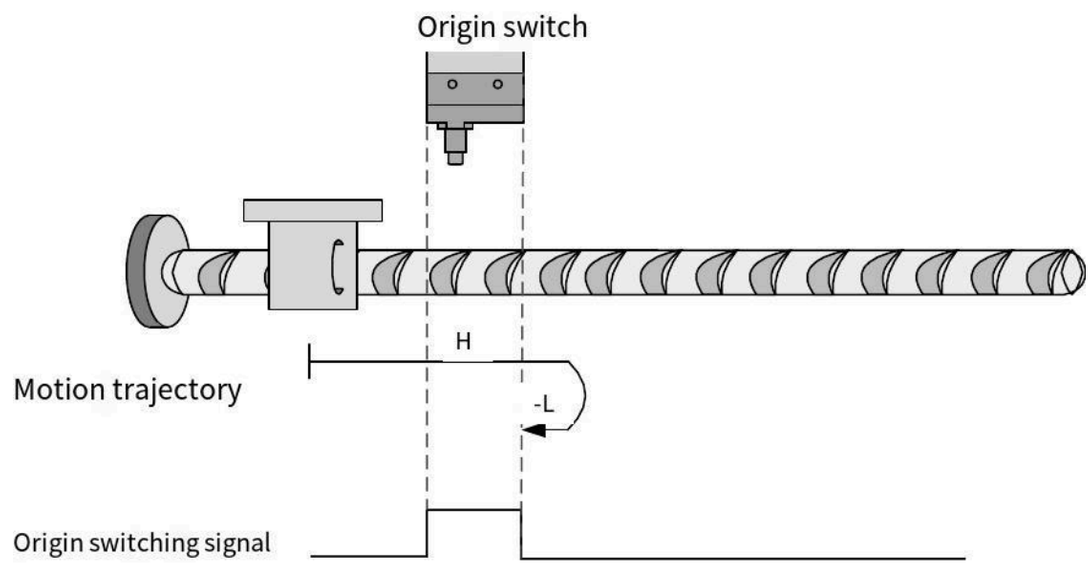
(HW)

a



HW=0 HW

b



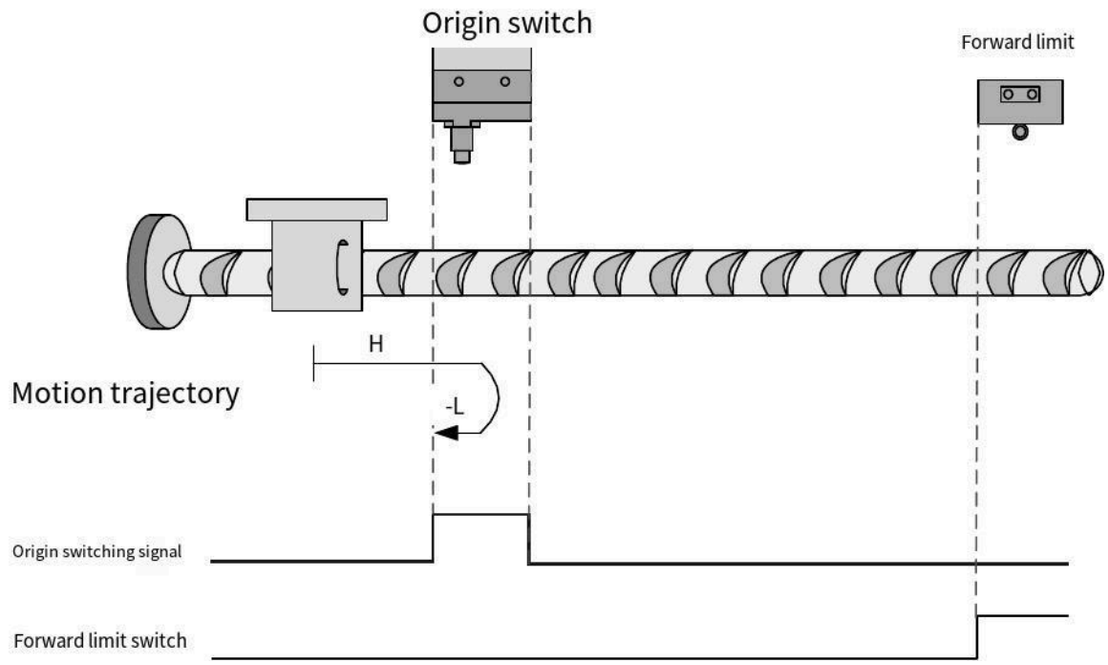
HW=1
HW
HW

㉑ 6098h = 23

(HW)

(HW)

a

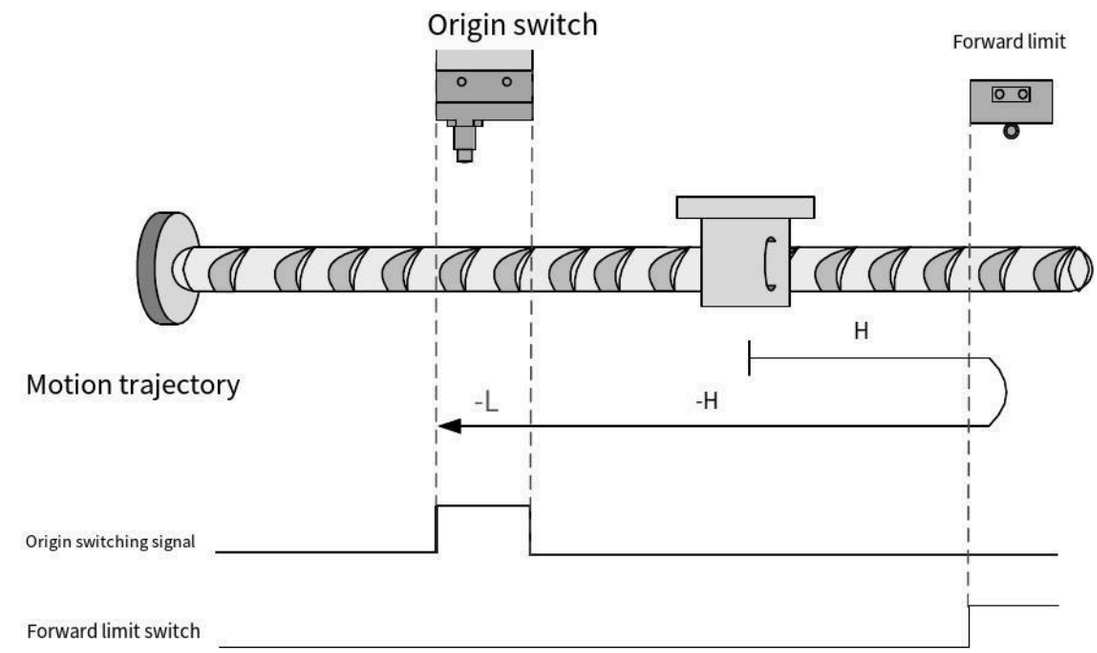


HW=0

HW

HW

b

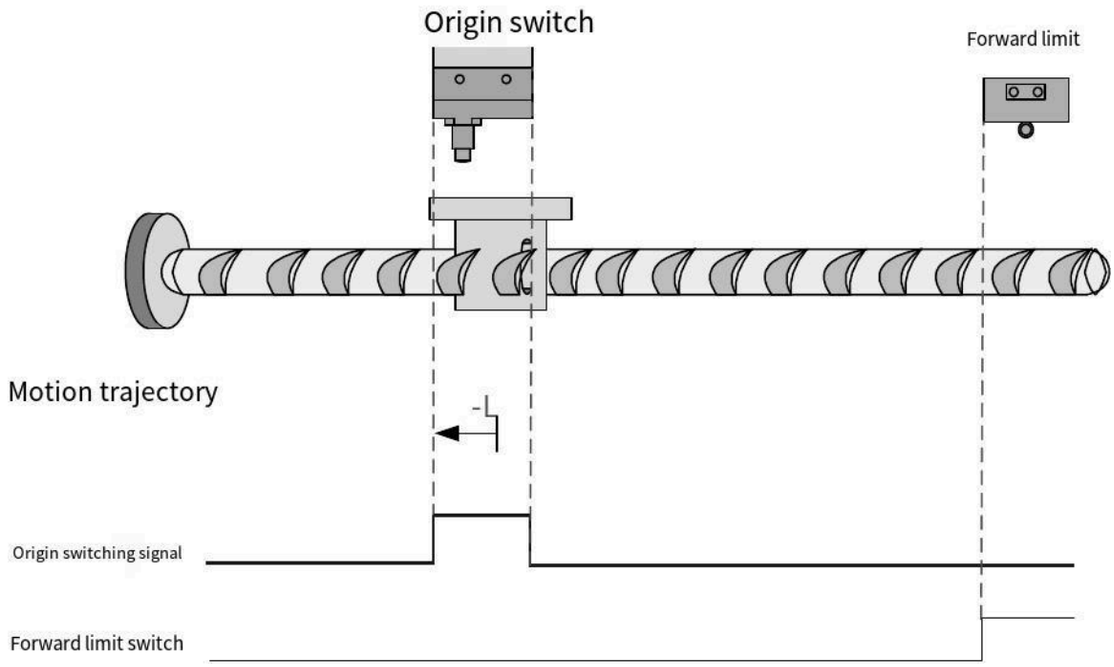


HW=0

HW

HW

c



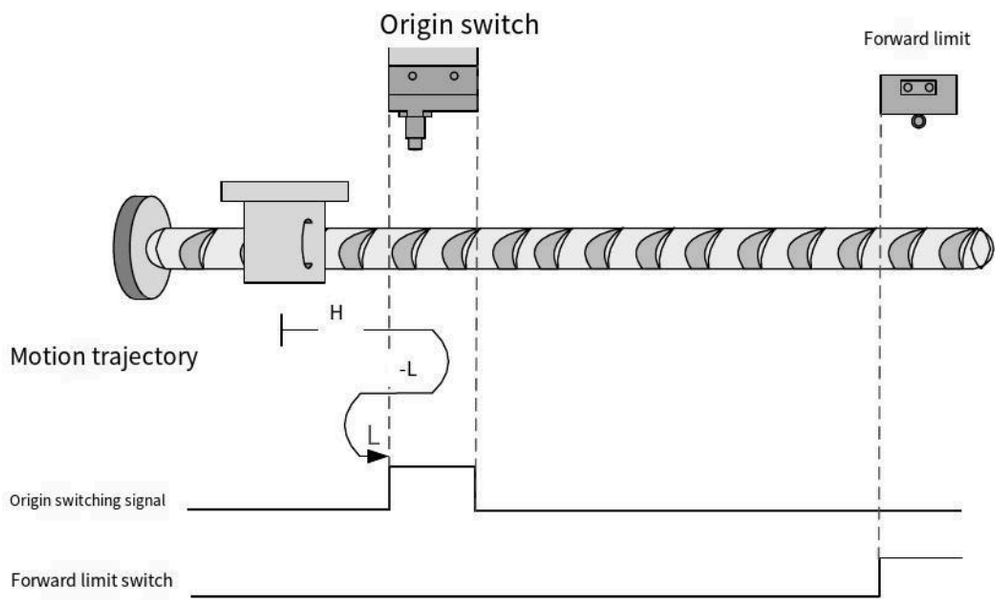
HW=1 HW

㉒ 6098h =24

(HW)

(HW)

a

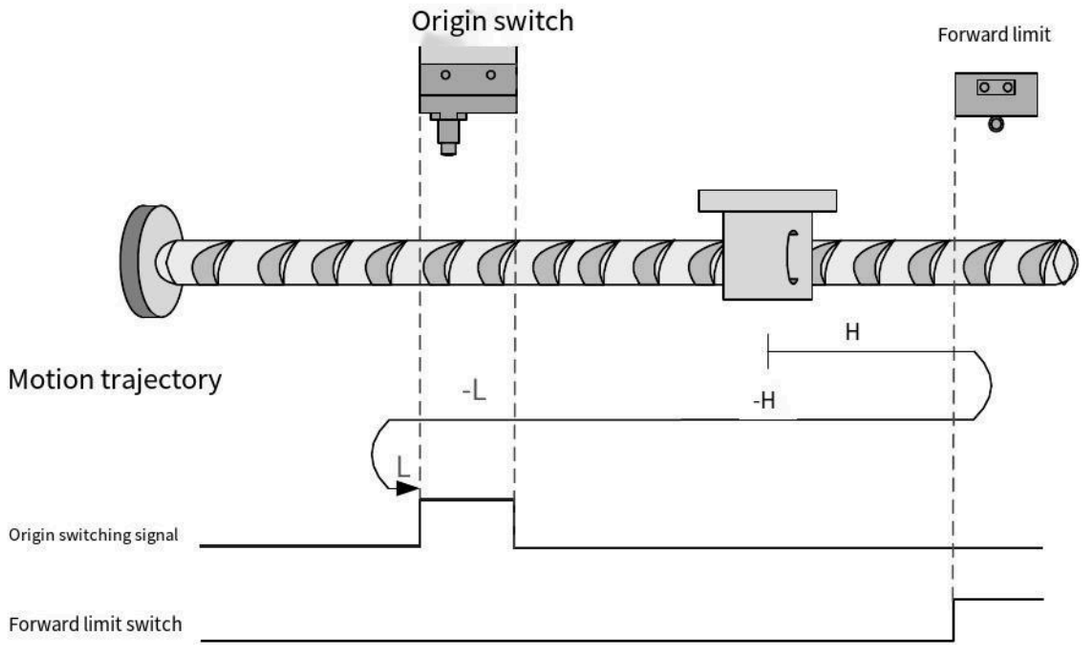


HW=0

HW

HW HW

b

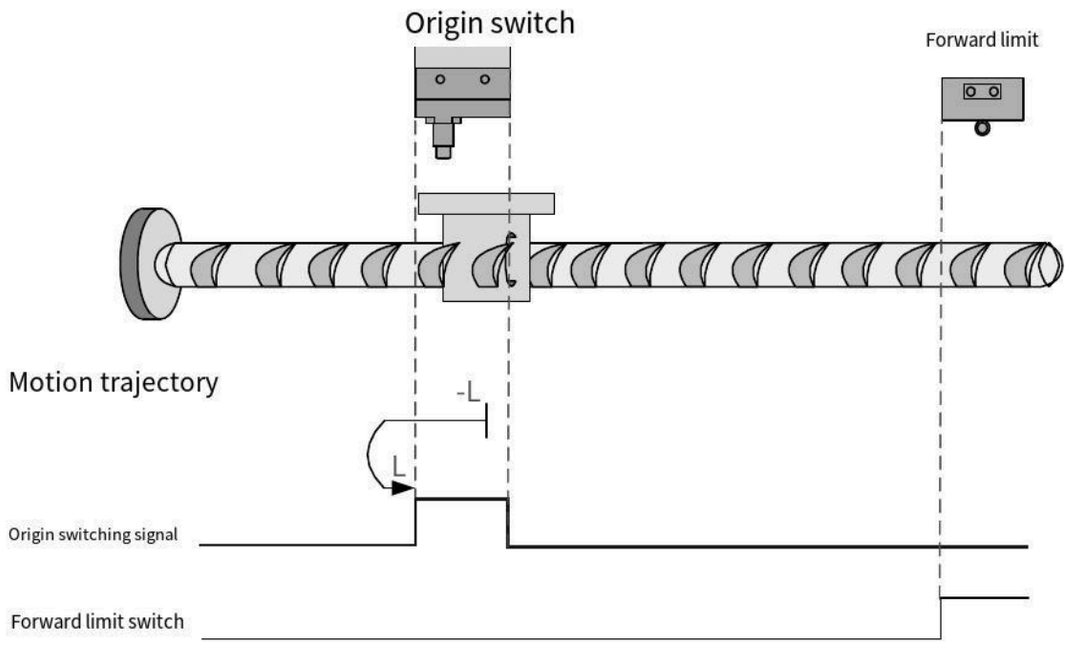


HW=0

HW

HW HW

c



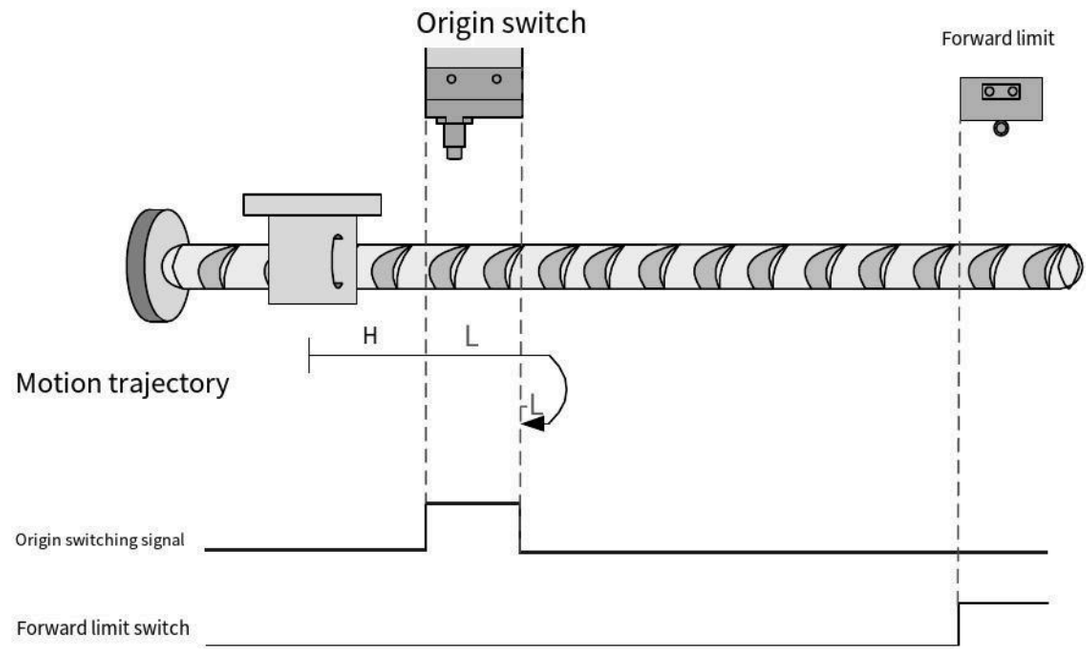
HW=1
HW
HW

㉓ 6098h =25

(HW)

(HW)

a

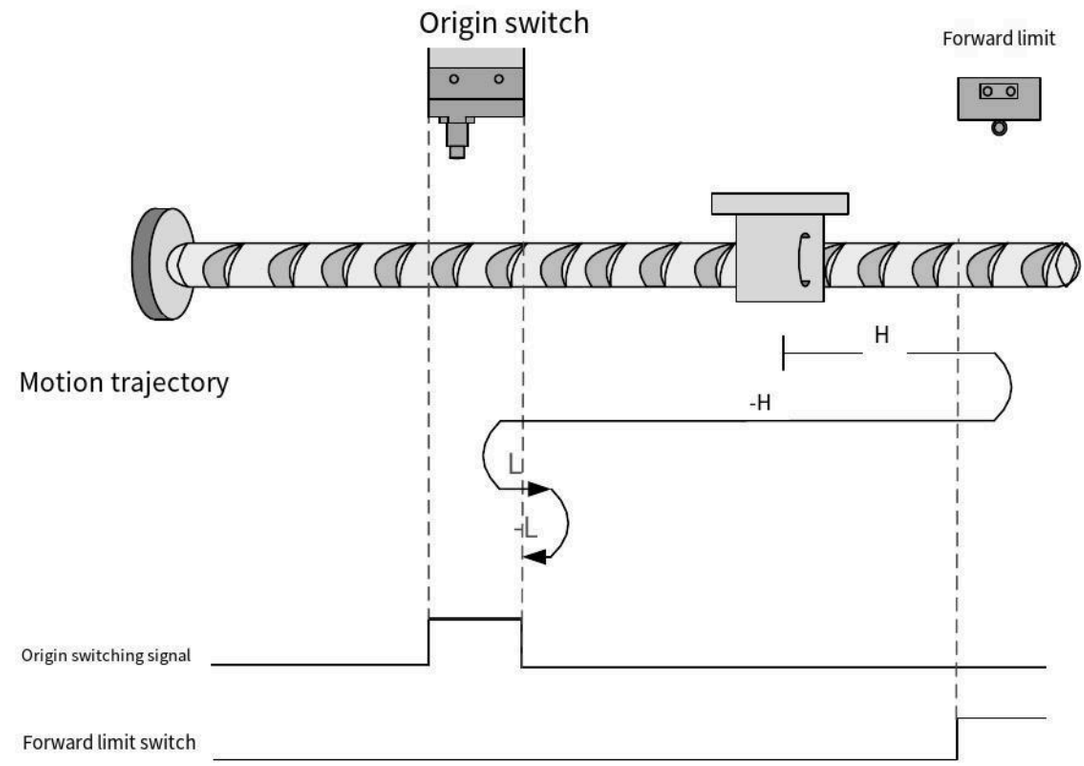


HW=0

HW

HW HW

b

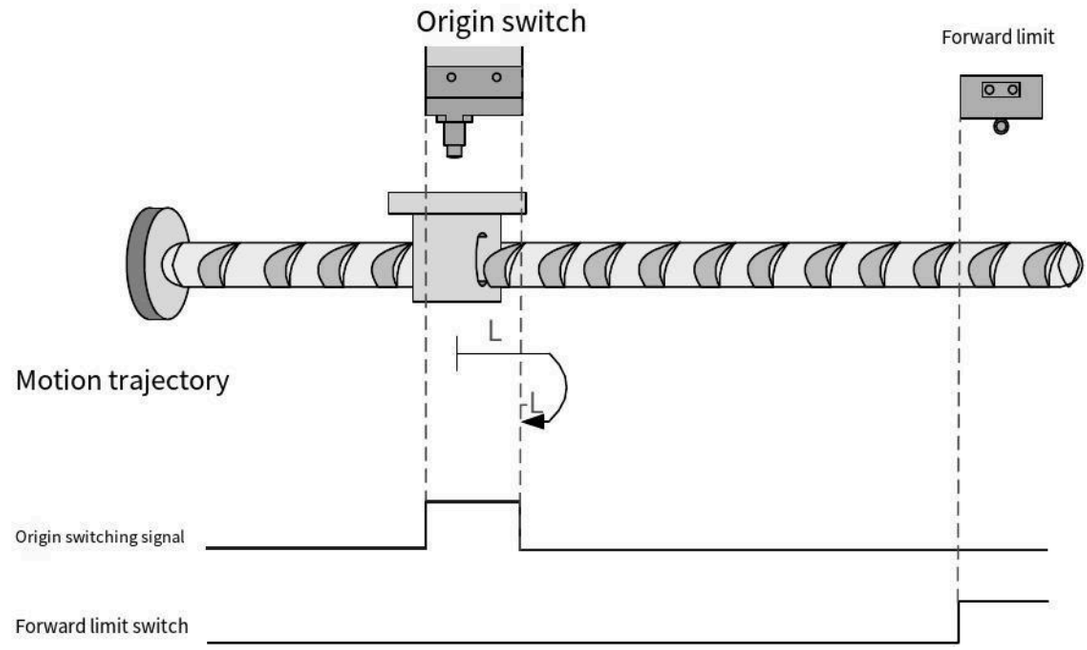


HW=0

HW

HW HW

c



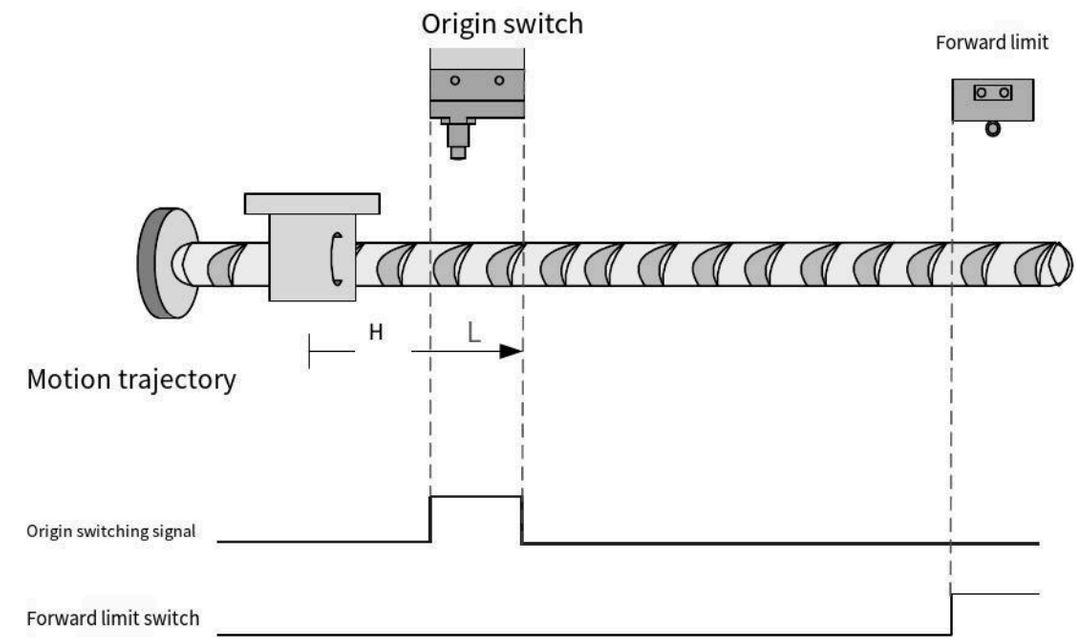
HW=1 HW HW

㉔ 6098h =26

(HW)

(HW)

a

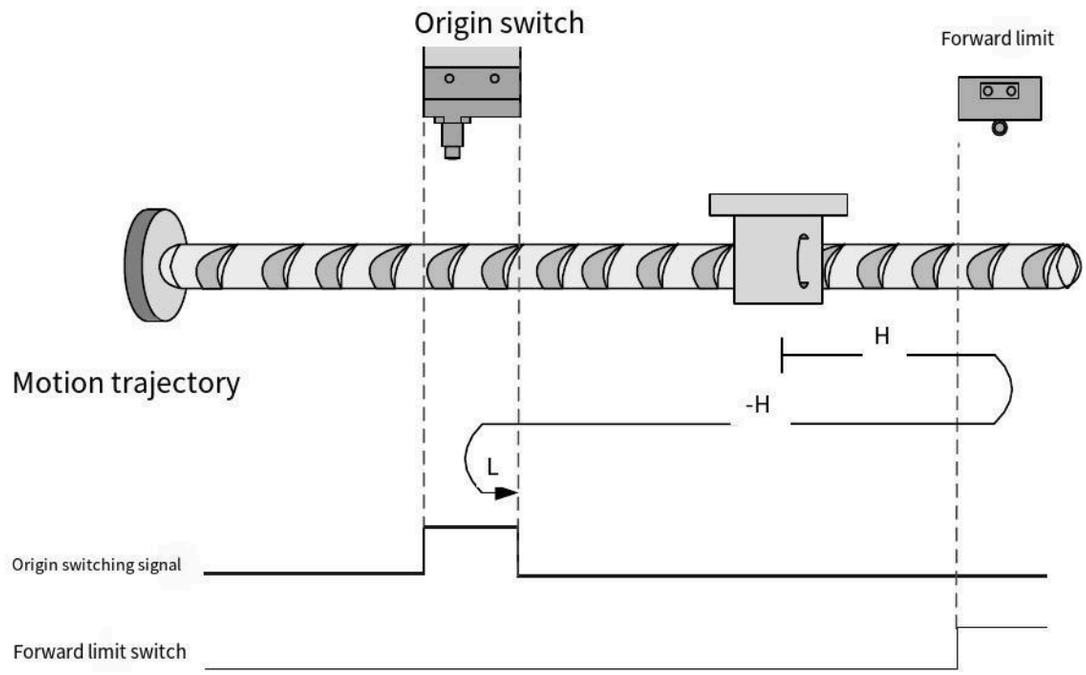


HW=0

HW

HW

b

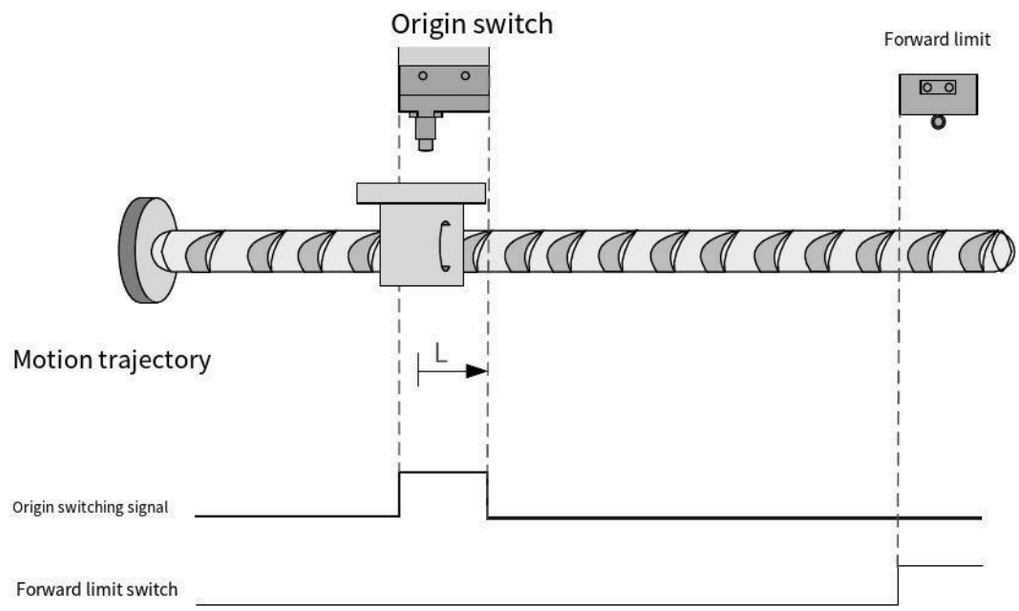


HW=0

HW

HW

c



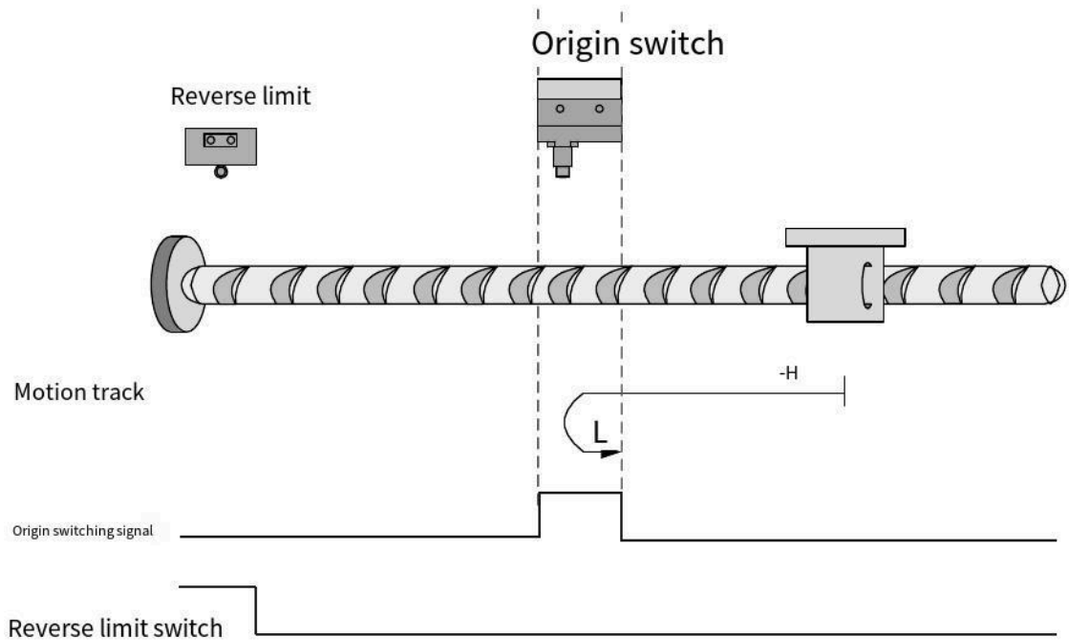
HW=1 HW

⑮ 6098h =27

(HW)

(HW)

a

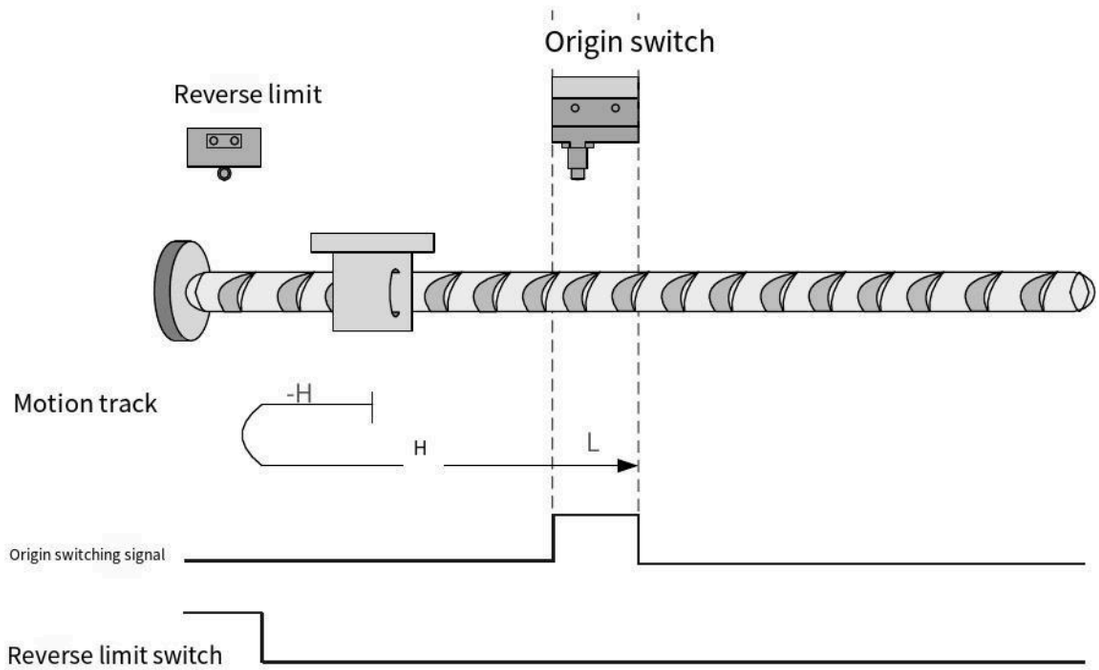


HW=0

HW

HW

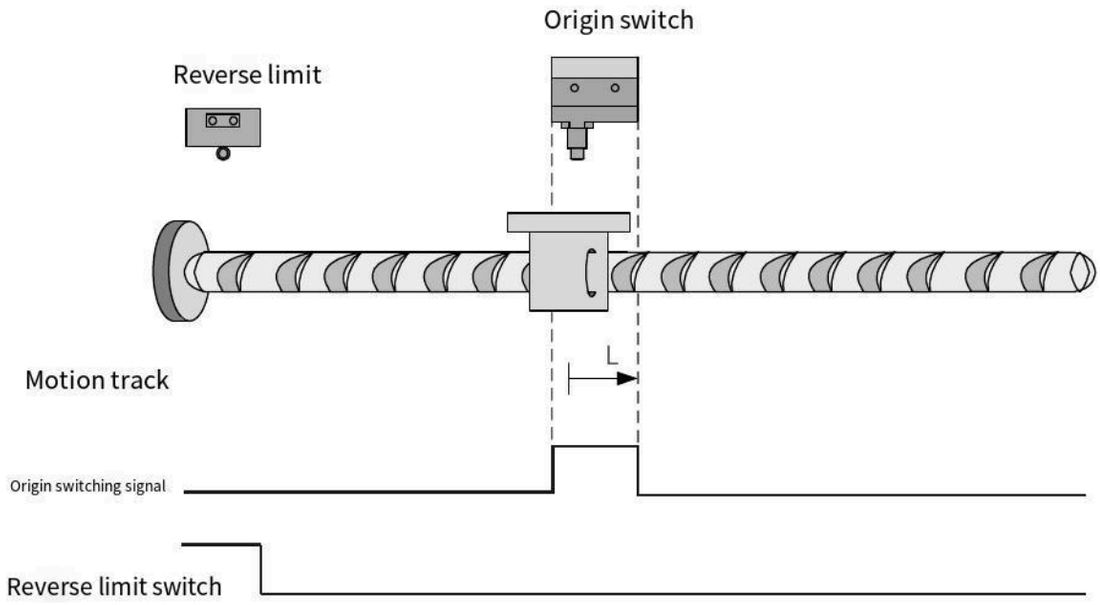
b



HW=0 HW

HW

c



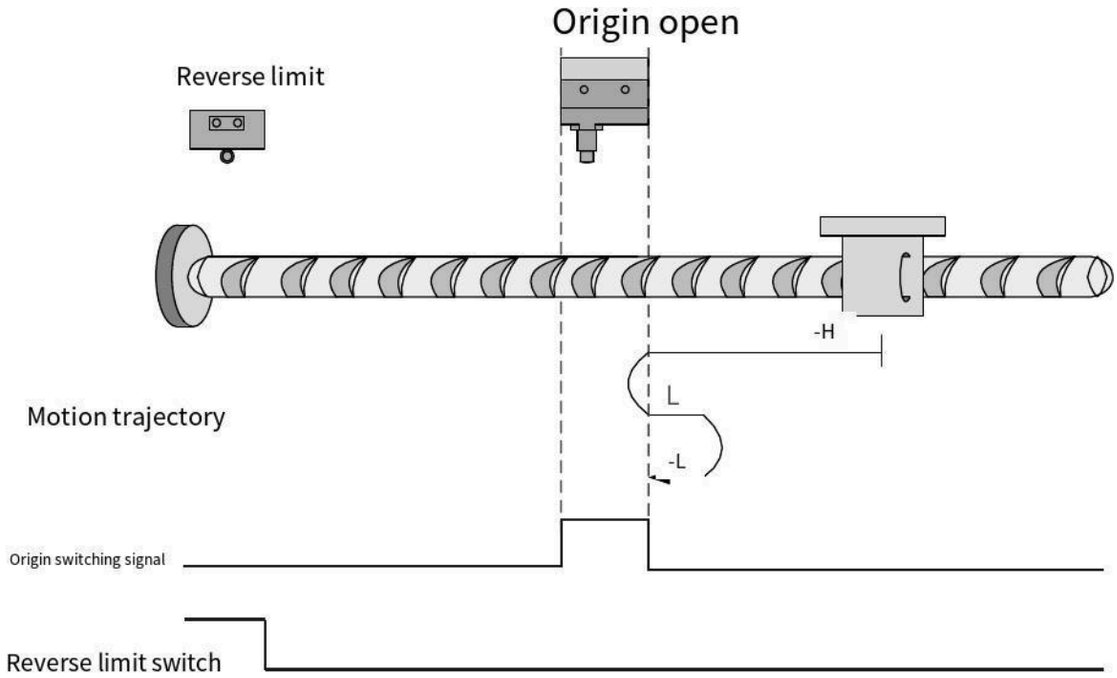
HW=1 HW

㉖ 6098h =28

(HW)

(HW)

a

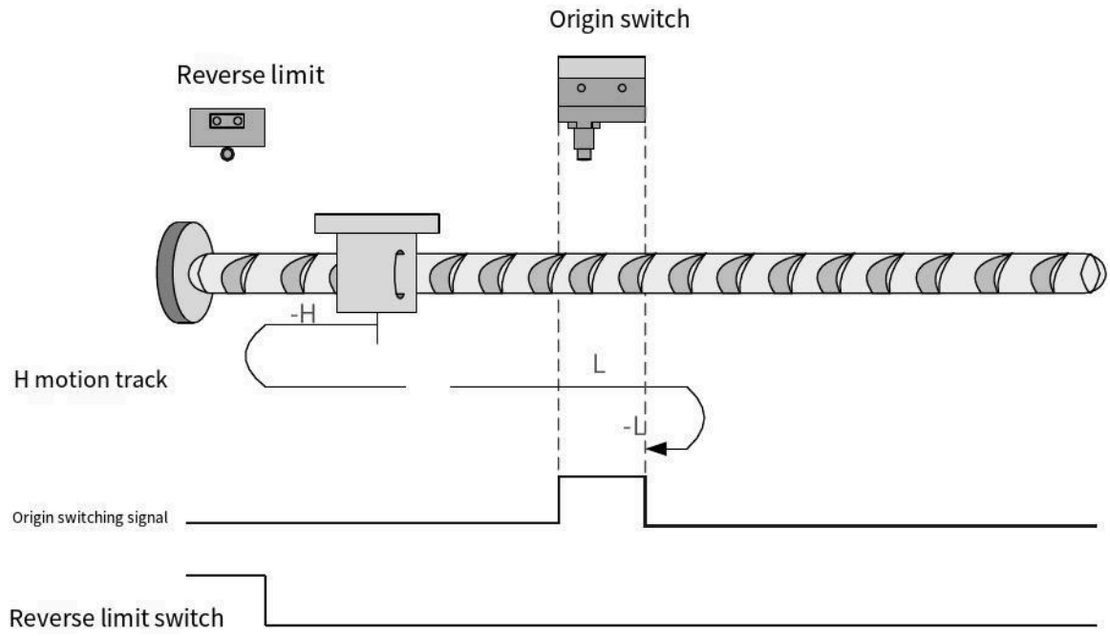


HW=0

HW

HW HW

b

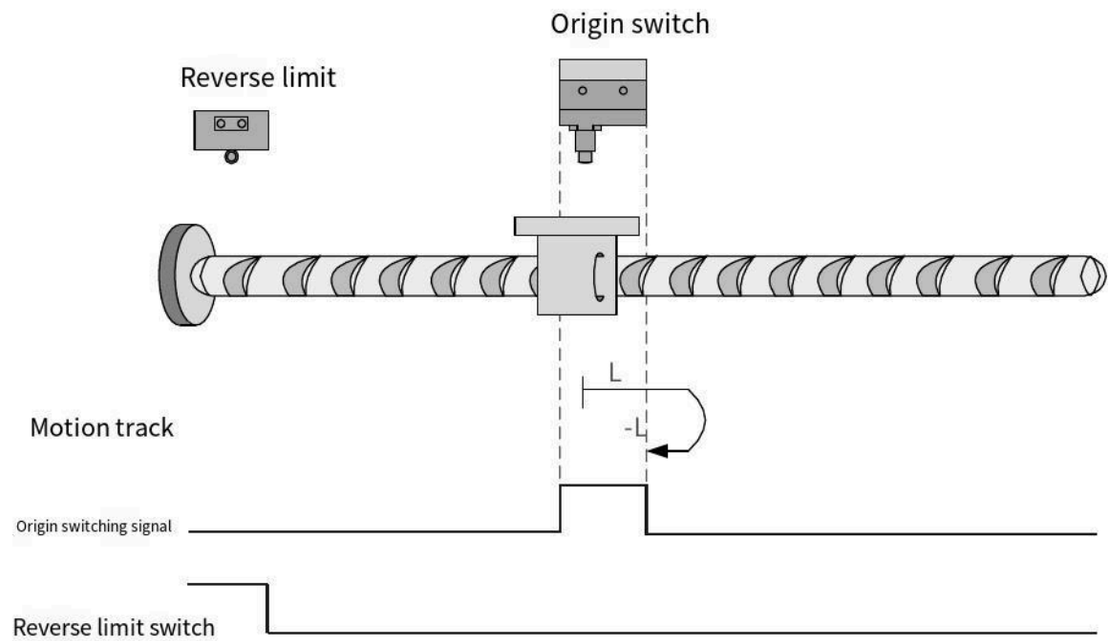


HW=0

HW

HW HW

c



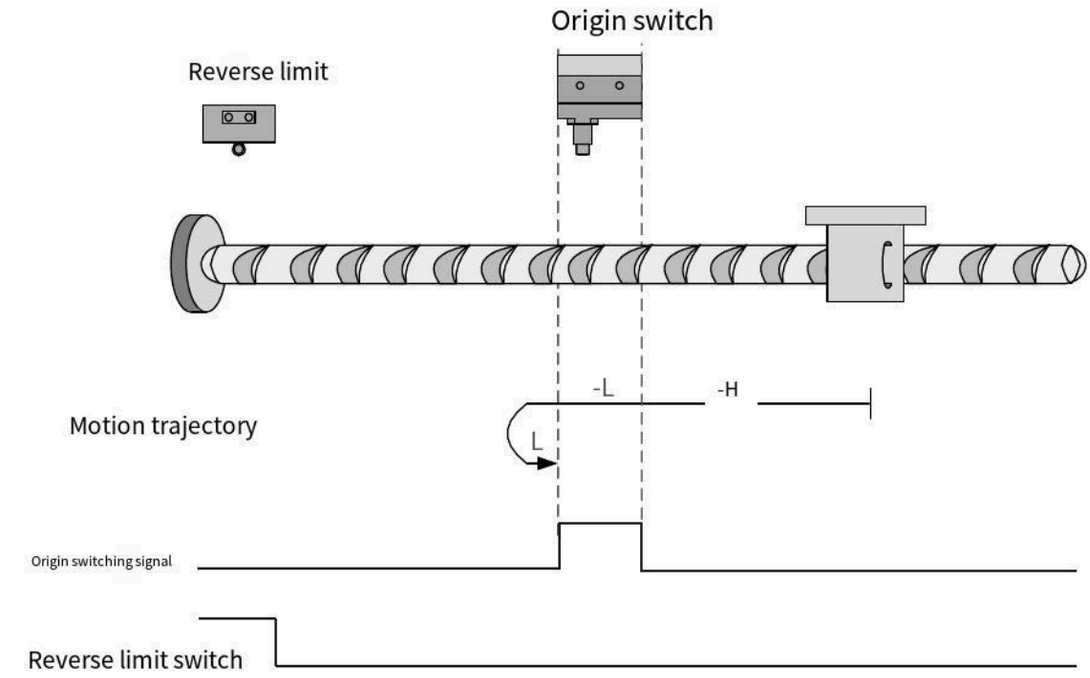
HW=1 HW HW

㉗ 6098h =29

(HW)

(HW)

a

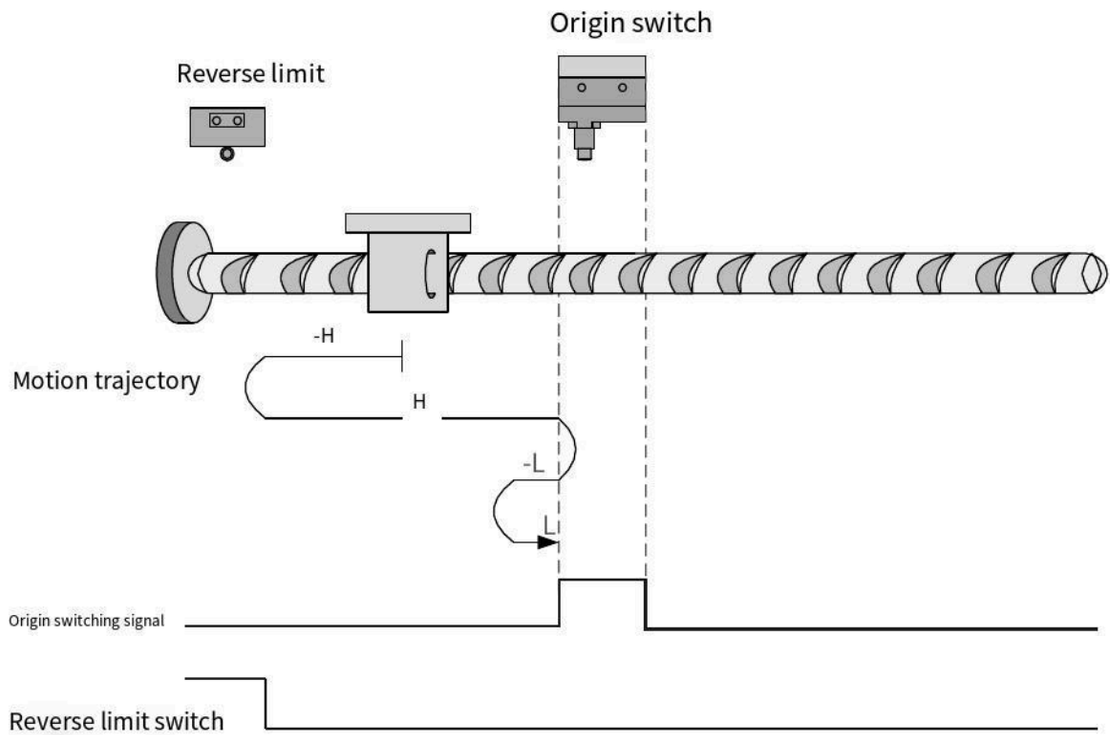


HW=0

HW

HW HW

b

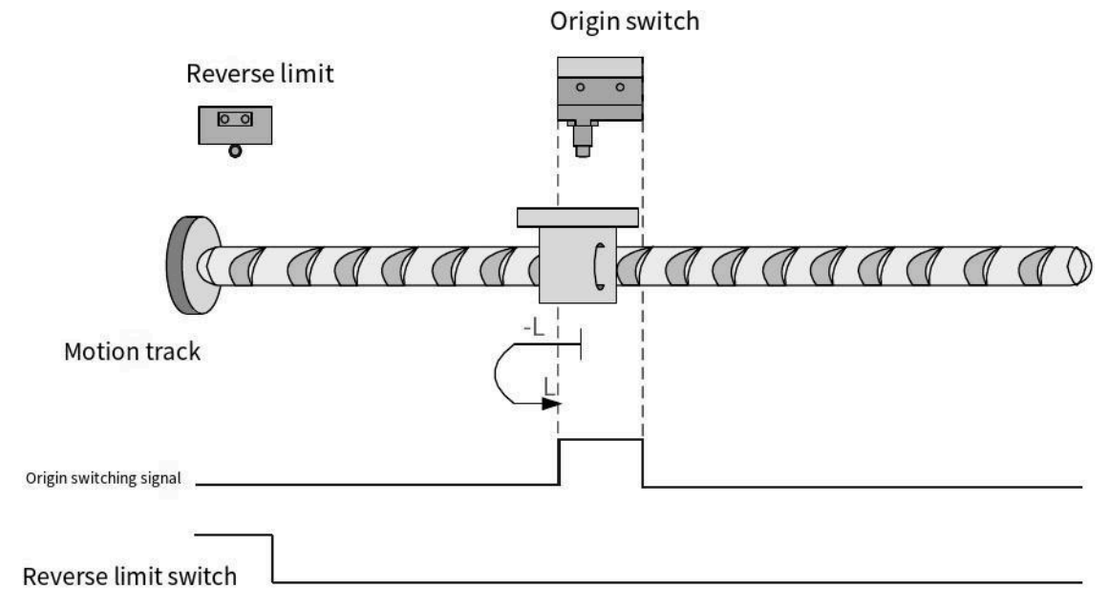


HW=0

HW

HW HW

c

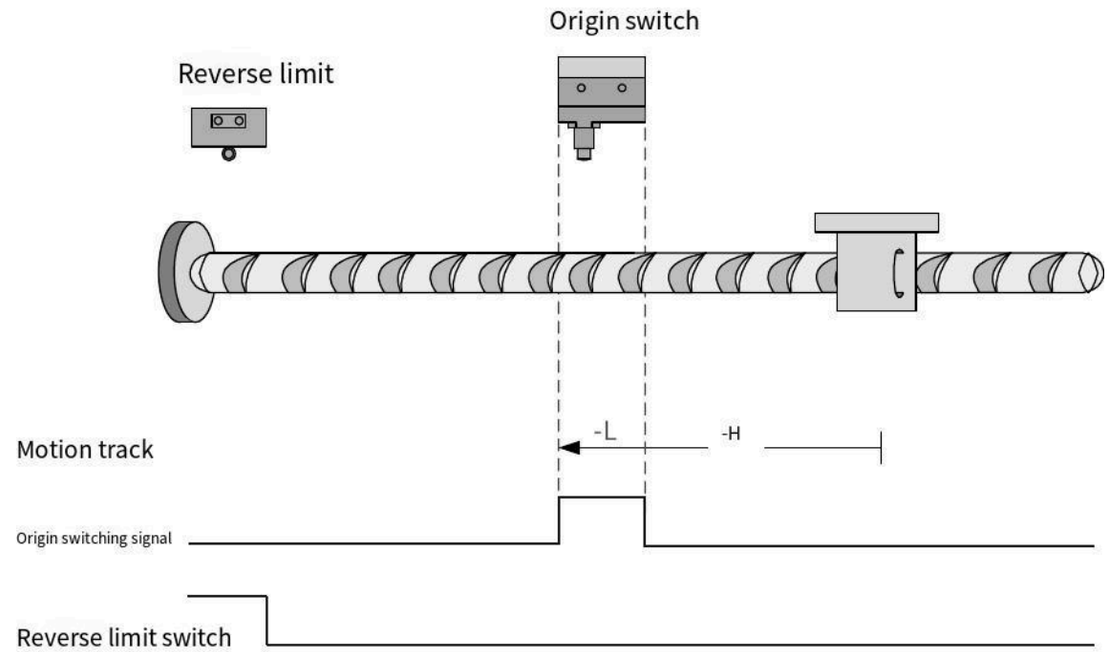


HW=1 HW HW ㉘ 6098h =30

(HW)

(HW)

a

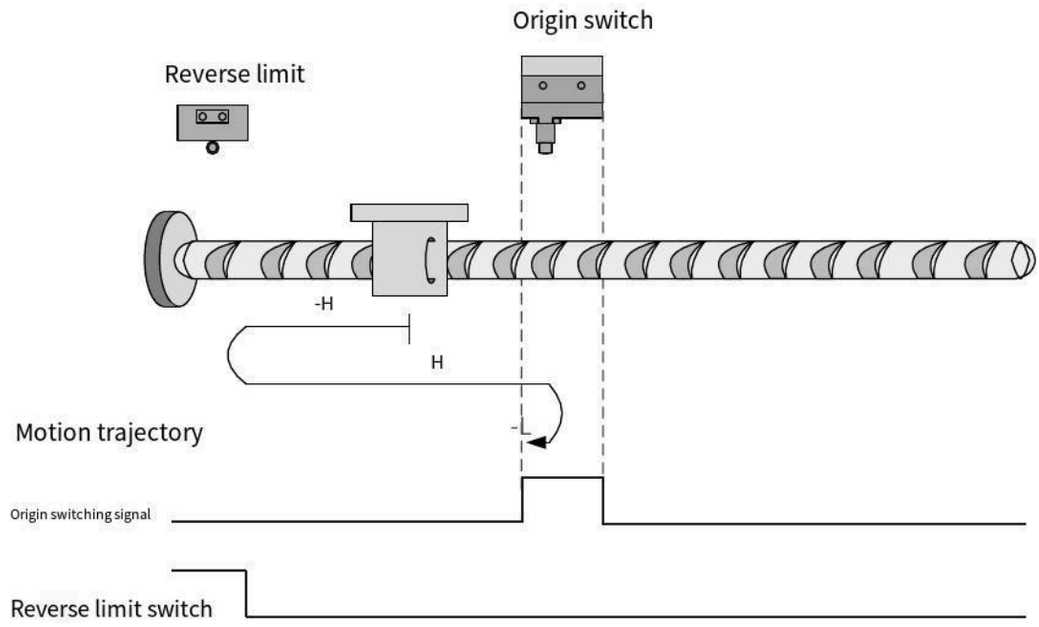


HW=0

HW

HW

b

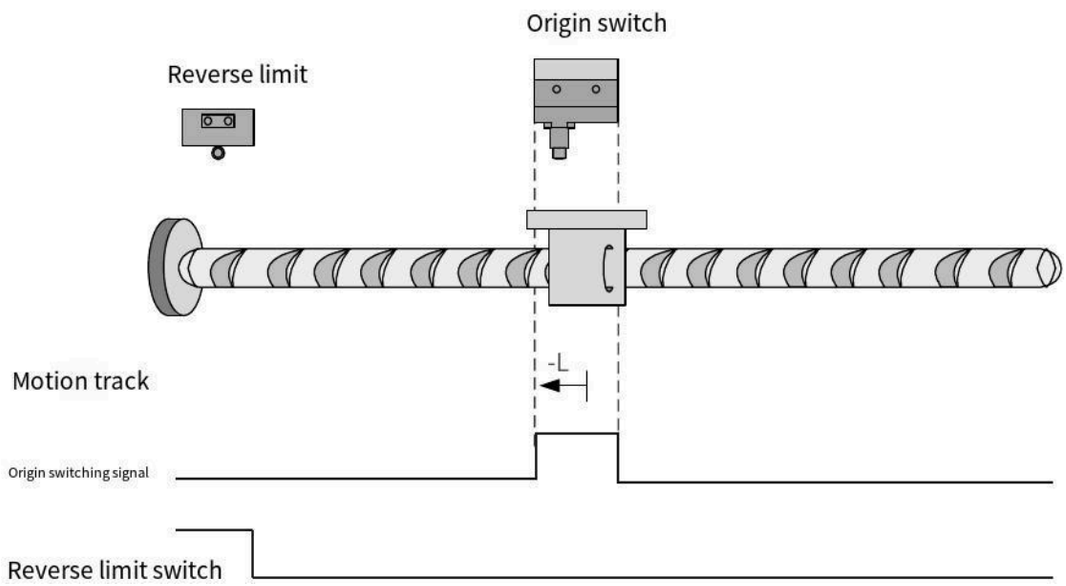


HW=0

HW

HW

c



HW=1 HW

29	HW rising edge
30	HW falling edge

㉙ 6098h=31 32

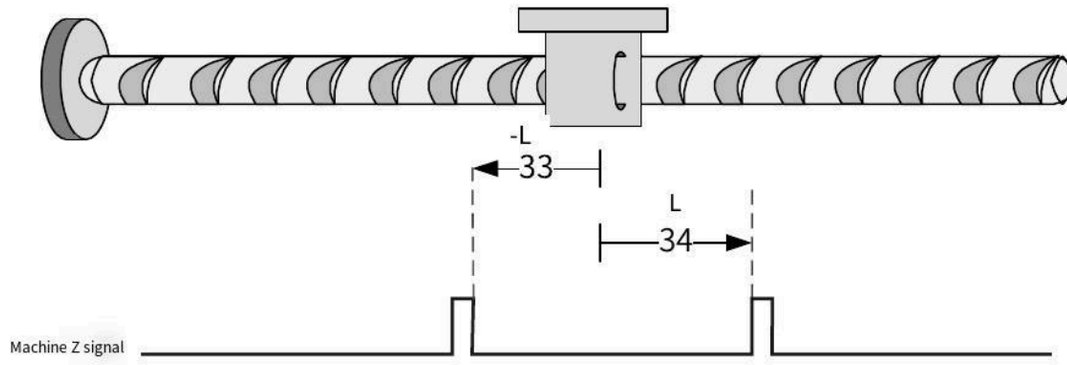
402

㉚ 6098h=33 34

Z

33 Z

34 Z



6098h=35

35

(6040 0x0F 0x1F)

60E6= 0( )

6064 607C

60E6 = 1( )

6064 607C

Give attention to
◆ Please note that the distance between the limit switch and the forward and reverse limit switch cannot be too close, and the appropriate acceleration must be set, otherwise it may cause crash!

6.10.5

RPDO	TPDO	remark
6040: control word	6041: status word	Must
6098: Return to zero method Homing method		Optional
6099-01: search for deceleration point signal speed speed during search forswitch		Optional
6099-02: search origin signal speed during search for zero		Optional
609A: Homing acceleration back to zero		Optional
	6064: position feedback position actual value	Optional
6060: Select modes of operation	6061: Run mode displays modes of operation display	Optional

6.1
1

DI DIDO

6.11.
1

1

(200A-05h) (Er.620) 200A-05h,

(200A-1Bh=
1)

200A-05h	Name	Motor overload protection gain			Set effective	Run Settings take effect immediately	Data structure	-	Data type	Uint16
	accessibility	RW	Can map	-	Related patterns	-	Data range	50-300 (units: %)	Factory Settings	100

2

Through 200A-05h, set the time reported by the motor overload fault Er.620.

Change the value according to the heating condition of the motor, you can advance or delay the time of overload protection failure of the motor, 50% can reduce the time by half, and 150% will increase to 1.5 times.

The setting of the value should be based on the actual heating of the motor, and it should be used with caution!

(200A-21h) (Er.630)

200A-1Bh	name	Motor overload shield enabled			Settings in effect	Shutdown Settings With immediate effect	Data structure	-	Data type	Uint16
	Accessibility	RW	Can map	-	Related patterns	-	Data range	0 ~ 1	Factory Settings	0

Set whether to enable motor overload detection.

Set value	Function
0	Open motor overload detection.
1	Shield motor overload warning (Er.909) and fault (Er.620) detection.

◆ Note: \Use the motor overload shielding function with caution, or it will cause the motor to burn out!

200A-22h

200A-21h	Name	Blocked transition temperature protection time window Overheat protection time duration for locked rotor			Run Settings in effect Effective immediately		Data structure	-	Data type	Uint16
	Accessibility	RW	Can map	-	Related patterns	P	Data range	10 to 65535 (units: ms)	Factory Settings	200
3										

Set the time threshold for the servo drive to detect the gridlock turn temperature fault (Er.630). By changing 200A-21h, you can adjust the sensitivity of the turn temperature fault detection.

200A-0Dh

200A-ODh	name	Overspeed fault threshold Overspeed threshold			Set effective	Run Settings take effect immediately	Data structure	-	Data type	Uint16
	accessibility	RW	Can map	-	Related patterns	PST	Data range	0-10000 (unit: rpm)	Factory Settings	0

Set the motor speed threshold in case of overspeed failure of the drive.

Set value	Decision threshold	Overspeed fault Er.500 decision condition
0	Maximum motor speed x 1.2	When the speed feedback value is greater than the overspeed fault threshold multiple times, the drive occurs Er.500(overspeed fault).
1-10000	If 200A-09h >(maximum motor speed x 1.2)	Overspeed fault threshold: maximum motor speed x 1.2
	If 200A-09h<(maximum motor speed x 1.2)	Overspeed fault threshold: 200A-09h

200A-ODh	name	Ride protection enabled Runaway protection		Settings in effect	Run Settings take effect immediately	Data structure	-	Data type	Uint16
	accessibility	RW	Can map -	Related patterns	PST	Data range	0 ~ 1	Factory Settings	1

Car protection function enabled:

Set Value	Function	Remarks
0	Not enable	When in vertical or towed load application situation, set 200A-ODh to zero, shield the vehicle fault (Er.234) detection. Turn on the ride protection.
1	Enable	

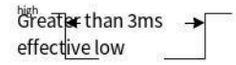
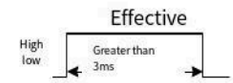
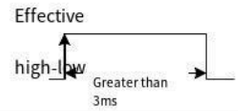
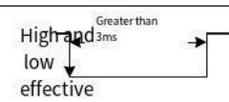
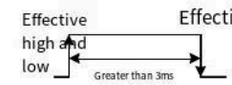
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6.11.2 DI

8 DI DI1 DI6 DI DI8 DI9 DI

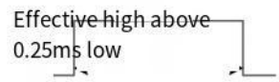
1 DI

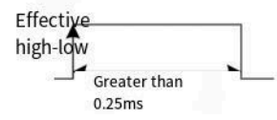
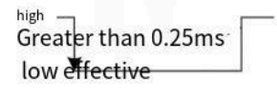
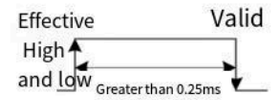
7-7 DI

Set value	DI terminal logic when the DI function is valid	Remarks
0	Low level	
1	High level	
2	Rising Edge	
3	Falling Edge	
4	Rising and falling edges	

2 DI

7-8 DI

Set value	DI terminal logic when the DI function is valid	Remarks
0	Greater than 0.25ms low level	
1	High level	

Set value	DI terminal logic when the DI function is valid	Remarks
2	Rising Edge	
3	Falling Edge	
4	Rising and falling edges	

3 DI

2 DI 4kHz 200A-14h 200A-15h

200A-14h	name	DI8 filter time constant DI8 filter time			Set effective	Shutdown Settings power up again	Data structure	-	Data type	Uint16
	accessibility	RW	Can map	-	Related patterns	-	Data range	0 to 255 (units: 25	Factory Settings	80

200A-15h	Name	DI9 filter time constant DI9 Filter Time			Setting in effect	Shutdown Settings power up again	Data structure	-	Data type	Uint16
	Accessibility	RW	Can map	-	Related patterns	-	Data range	0-255. (Units: 25)	Factory Settings	80

DI8 and DI9 are high speed DI input ports that filter out peak interference when there is peak interference in the external input signal by setting 200A-14h or 200A-15h.

NOTE

- The D18 and D19 signals before filtering are displayed in the oscilloscope of the driving debugging platform, and the signal width is less than 0.25ms.

6.11.3

DI Z ( )

Servo 2

4

1 DI8 Z 2 DI9 Z

Give attention to

- When using DI8 or DI9 as the trigger signal of the probe, the logical setting of the DI terminal must be consistent with the setting of 60B8 (probe function), otherwise, the probe function is invalid!
- Please be sure to correctly set the 200C-2Ah parameter value according to the actual PC type, otherwise, the probe function is invalid!

1

index	Subindex	Name	Access	Data type	Units	Set range	Default
0x2003	11	DI8 function Settings	RW		-	0-39	0
0x2003	12	DI8 Logic set	RW	Uint16 Uint16	-	0 to 4	0
0x2003	13	DI9 function set	RW	Uint16	-	0-39	31
0x2003	14	DI9 Logical setup	RW	Uint16	-	0 ~ 4	0
0x60B8	00	Probe function	RW	Uint16 Uint16	-	0-65535.	0
0x60B9	00	Probe State	TPDO		-	-	0
0x60BA	00	Probe 1 Rise along latch position	TPDO	int32	Instruction unit	-	0
0x60BB	00	Probe 1 Falling edge latch position Probe 2 Rising edge latch position	TPDO	int32	Instruction unit	-	0
0x60BC	00		TPDO	int32		-	0
Ox60BD	00	Probe 2 Drop along latch position	TPDO	int32	Instruction unit	-	0

2

Servo DI8 DI9 DI DI8 1(DI 38) DI9 2(DI 39) DI8 DI9 DI8

1

a DI8 0x2003-11 38 b DI8 0x2003-12

DI8 Logical Settings 2003-12h Settings	Description
0: Low level valid	Drive internal forced conversion to falling edge valid
1: High level is valid	Drive internal forced conversion to rising edge effective
2: The rising edge is effective	Rising edge effective
3: Falling edge works	Falling edge works
4: Edge change works	Both rising and falling edge changes are valid

0x2003-12 1 2

3 (0x60B8)

(0x60B8)

Bit	Description	Instructions
0	Probe 1 Enable: 0-- Probe 1 is disabled 1-- Probe 1 is enabled	Bit0~Bit5: Settings related to probe 1 Note: Once the enable signal of probe 1 (rising edge of 60B8h bit0) is effective, the function Settings of probe 1 (trigger mode, trigger signal, effective latch edge) cannot be changed, and the bit0 of 60B8h must remain active during the operation of probe 1. When full closed loop is enabled, the Z signal refers to the external sensor Z signal. When triggered with an external sensor Z signal, probe 1 does not support both rising and falling edge latches, probe 1 and probe 2 need to be configured separately with rising and falling edge latches. When DI8 is used as probe 1 to trigger the signal, it can enable the rising edge and falling edge at the same time Position latch function; When 200C-2A=2, only the rising edge latch function of the Z signal can be used; When 200C-2A is set to other values, only the falling edge latch function of the Z signal can be used. For absolute value encoders, the Z signal refers to the zero of the motor's single-turn position feedback.
1	Probe 1 Trigger mode 10 A single trigger, only triggered when the trigger signal is active for the first time 1 - continuous trigger	
2	Probe 1 Trigger signal selection 0 - DI8 Input signal 1-Z signal	
3	NA	
4	Probe 1 Enable the rising edge 0-- The rising edge does not latch 1-- rising edge latch	
5	Probe 1 Enable the falling edge 0-- the falling edge does not latch 1-- falling edge latch	
6 to 7	NA	

Bit	Description	Instructions
8	Probe 2 Enable: 0-- Probe 2 is disabled 1-- Probe 2 is enabled	Bit8~Bit13: related Settings on probe 2 Note: Once the enable signal of probe 2 (rising edge of 60B8h bit8) is effective, the function Settings of probe 2 (trigger mode, trigger signal, effective latch edge) cannot be changed, and the bit8 of 60B8h must remain active during the operation of probe 2. When full closed loop is enabled, the Z signal refers to the Z signal of the external sensor. When triggered by external sensor Z signal, probe 2 does not support both rising and falling edge latches, probe 1 and 2 need to be configured separately with rising and falling edge latches. DI9 as probe 2 triggers the signal to enable both the rising and falling edge Set latch function; When 200C-2A=2, only the rising edge latch function of the Z signal can be used; When 200C-2A is set to other values, only the falling edge latch function of the Z signal can be used. For absolute value encoders, the Z signal refers to the zero of the motor's single-turn position feedback.
9	Probe 2 Trigger mode 0 A single trigger, only triggered when the trigger signal is active for the first time 1 - continuous trigger	
10	Probe 2 Trigger signal selection 0 - DI9 Input signal 1-Z signal	
11	NA	
12	Probe 2 Enable rising edge 0-- Rising edge does not latch 1-- Rising edge latch	
13	Probe 2 Falling edge Enable 0-- The falling edge does not latch 1-- falling edge latch	
14 to 15	NA	

0x60B8 = 0x0013 0x60B9
4 0x60B9

Bit	Description	Instructions
0	Probe 1 Enables: 0-- Probe 1 is not enabled 1-- Probe 1 is enabled	Bit0 to Bit7: reflects the state of probe 1 Note: 200C-2A=2: In continuous mode, bit6 and bit7 record the number of times the corresponding probe function has been executed, and the value is cyclic record between 0 and 3; In single mode, bit6 and bit7 are not recorded. When 200C-2A is set to other values, bit6 and bit7 have the meaning as described in the text on the left.
1	Probe 1 is executed with rising edge latch 0-- Rising edge latch not executed 1-- Rising edge latch executed	
2	Probe 1 Falling edge latch executed 0-- Falling edge latch not executed 1-- The falling edge latch has been executed	
3-5	NA	
6	Probe 1 trigger signal selection 0 - DI8 Input signal 1-Z signal	
7	Probe 1 Trigger signal monitoring 0 - DI8 is low 1-DI8 is high	

Bit	Description	Instructions
8	Probe 2 Enables: 0-- Probe 2 is not enabled 1-- Probe 2 is enabled	Bit8~Bit15: reflects probe 2 status Note: 200C-2A=2: In continuous mode, bit14 and bit15 record the number of times that the corresponding probe function has been executed, and the value is between 0 and 3. In single mode, bit14 and bi15 do not record. When 200C-2A is set to other values, bit14 and bit15 have the meaning as described in the text on the left.
91--	Probe 2 is executed by rising edge latch 0-- The rising edge latch is not executed Rising edge latch executed	
101--	Probe 2 drops along latch execution 0-- Falling edge latch not executed Falling edge latch executed	
11	NA~13	
14	Probe 2 Trigger signal selection 0 - DI9 Input signal 1-Z signal	
15	Probe 2 Trigger signal monitoring 0 - DI9 is low 1 - DI9 is high	

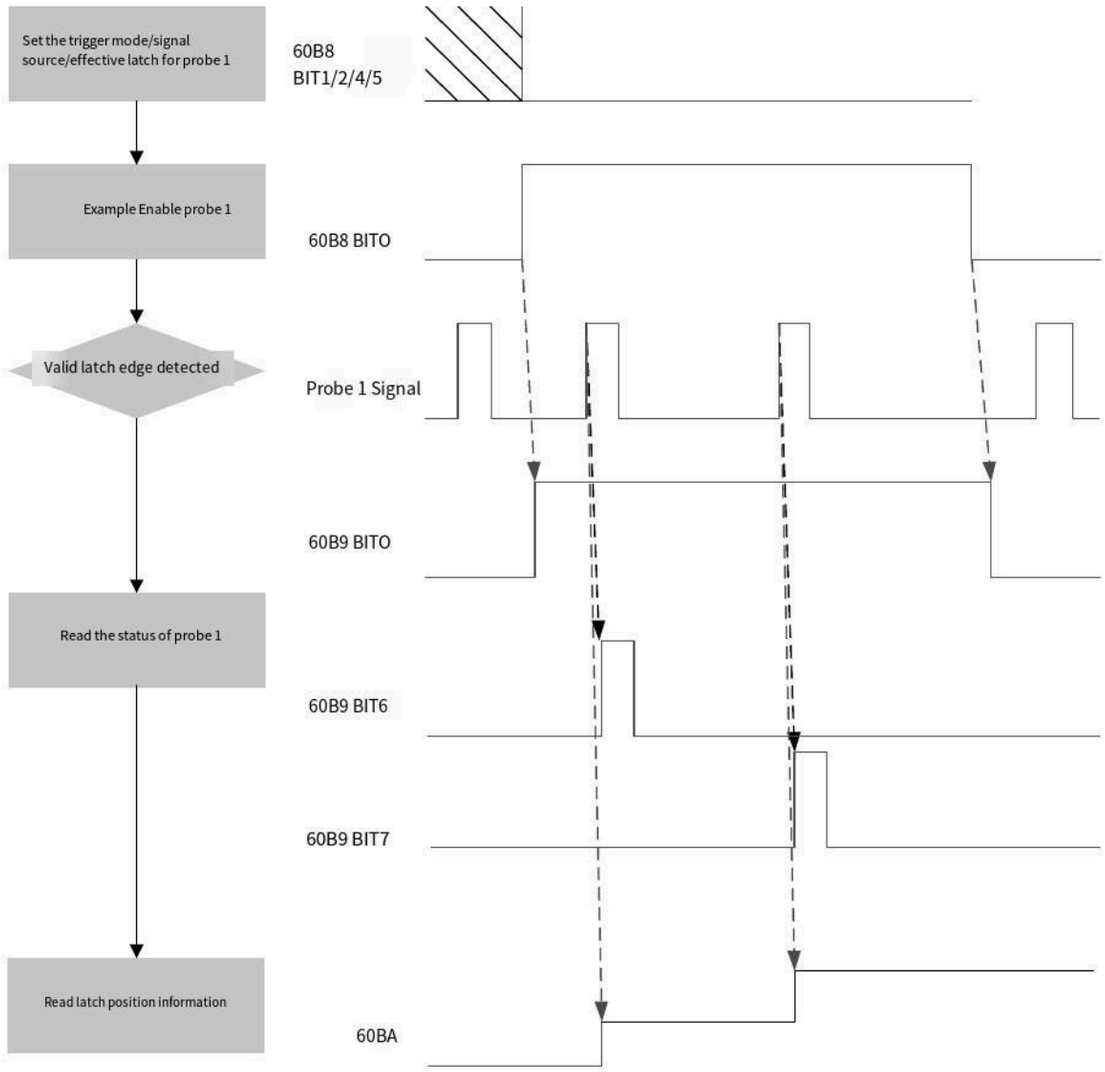
0x60B9 bit1 1 0x60B9 bit6 bit7

5

4 0x60BA 0x60BD

1 0x60BA(1)

DI8



6-38

Look out

Servos only support DI8 and DI9 as external DI trigger signals in the probe function; Before using external DI as trigger signal, be sure not to work in DI forced input mode at this time, otherwise the probe function cannot be used!

6.12

6.12.1

1

1

131072 2 17

16

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bus

2000-01h=14101 17

2002-02h

Er.731

200D-15h=1

2002-03h( ) 200D-15h

EEPROM

NOTE

2

a

2000-01h=14101 2002-02h

2000-01h	name	Motor number Motor SN			Set in effect	Shutdown Settings re-energize	Data structure	-	Data type	Uint16
	accessibility	RW	Can map	-	Related patterns	-	Data range	0 to 65535	Factory Settings	14000H

2002-02h	name	Absolute Value System selection Absolute system mode			Set in effect	Shutdown Settings re-energize	Data structure	-	Data type	Uint16
	Accessibility	RW	Can map	-	Related patterns	ALL	Data range	0-2	Factory Settings	0

NOTE

Er.122(

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b

1

200B-47h	name	Absolute number of encoder revolutions Number of turns of absolute encode			Set effective	-	Data structure	-	Data type	Uint16
	accessibility	RO	Can map	TPDO	Correlation model	ALL	Data range	-	Factory Settings	-

200B-47h_0_65535_RE_RE=2.

200B-48h	Name	Absolute encoder single-turn position feedback Single feedback postion of absolute encode			Set effective	-	Data structure	-	Data type	int32
	accessibility	RO	Can map	TPDO	Correlation model	ALL	Data range	- (In: encoder units)	Factory setting	-

200B-4Eh	Name	Absolute encoder absolute position is 32 bits lower feedback postion of absolute encode(Low)			Set effective	-	Data structure	-	Data type	int32
	accessibility	RO	Can map	TPDO	Correlation model	ALL	Data range	- (In: encoder units)	Factory setting	-

200B-50h	name	absolute encoder absolute position is 32 bits higher feedback postion of absolute encode(High)			Set effective	-	Data structure	-	Data type	int32
	accessibility	RO	Can map	TPDO	Correlation model	ALL	Data range	- (Units: eds Coder unit)	Factory Settings	-

1 200B-48h 0 RE

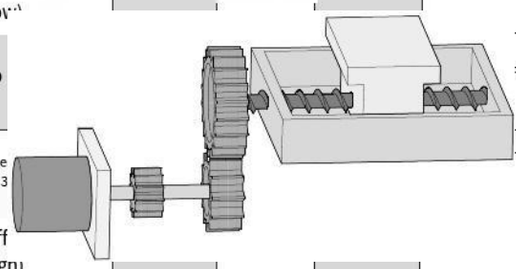
200B-50h 2 32+ 200B-4Eh

200B-47h, 200B-48h,

RE 200B-47h<32768 200B-50h 2 32+ 200B-4Eh =200B-47h RE+ 200B-48h 200B-47h 32768 200B-50h 2-32+ 200B-4Eh =(200B-47h-65536) RE+ 200B-48h

c

2005-2Fh	name	Absolute Position Linear Mode position bias is 32 bits lower Absolute position offset of absolute encode(Low)		Set effective	The stop setting takes effect immediately	Data structure	-	Data type	Int32
	Accessibility	RW	Can map					Factory setting	0
2005-31h	Name	Absolute position Line mode position bias is 3 higher Absolute position off absolute encode(High)						Data type	Int32
	accessibility	RW	Can map	Related patterns	ALL	Data range	-231-(231-1) encoder units	Factory setting	0
200B-08h	Name	Absolute position counter. Absolute Position counter		Setting in effect	Shutdown Settings take effect immediately	Data structure	-	Data type	Int32
	Accessibility	RO	Can map			-231-231	Encoder units	Factory Settings	0
200B-3Bh	Name	The mechanical absolute position is 32 bits lower Mechanical absolute position inc(Low)		Set in effect	-	Data structure (unit: encoder unit)	-	Data type	Int32
	Accessibility	RO	Can map	Related patterns	ALL	Data range	-	Factory Settings	-
200B-3Dh	Name	The mechanical absolute position is 32 bits higher Mechanical absolute position inc(High)		Set in effect	-	Data structure (unit: encoder unit)	-	Data type	Int32
	Accessibility	RO	Can map	Related patterns	ALL	Data range	-	Factory Settings	-



6-39

(200B-3Bh 200B-3Dh) PM (PM=200B-3Dh 2-32+ 200B-3Bh), PE【 PE-238 (2 38-1)

(2005-2Fh 2005-31h) PO PM =PE -

PO

B

B

=(200B-08h-200B-08h-PM / 2005-2Fh 2005-31h 0

2005-2Fh 2005-31h EEPROM

-32768 32767 32767-32768

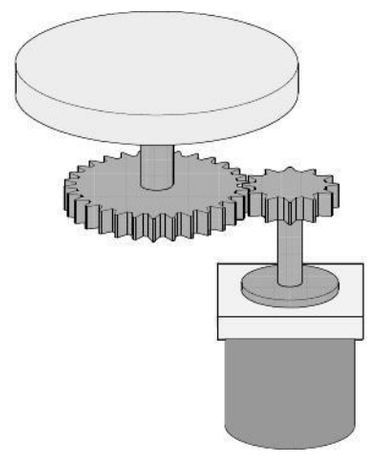
Er. 735( ) 200A-25h

d

2005-33h	name	Absolute position rotation mode Mechanical gear ratio (molecular) Gear ratio numerator of absolute encode mode 2			Set effective	The shutdown setting takes effect immediately	Data structure	-	Data type	Uint16
	accessibility	RW	Can map	-	Related patterns	ALL	Data range	1-65535	Factory Settings	1
2005-34h	Name	Absolute Position Rotary mode Mechanical gear ratio (denominator) Mechanical Gear ratio denominator of absolute encode mode 2			Set effective	The shutdown setting takes effect immediately	Data structure	-	Data type	Uint16
	accessibility	RW	Can map	-	Related patterns	ALL	Data range from 1 to 65535		Factory Settings	1
2005-35h	Name	Absolute Position Rotation mode Load rotation one turn for a low 32 bit Max number of pulses value of mechanical absolute position(inc) of absolute encode mode 2(Low)			Set effective	The shutdown setting takes effect immediately	Data structure	-	Data type	Uint32
	accessibility	RW	Can map	-	Related patterns	ALL	Data range	0-(232-1) (encoder unit)	Factory setting	0
2005-37h	Name	The absolute position rotation mode loads the number of pulses per turn higher by 32 bits Max value of mechanical absolute position(inc) of absolute encode mode 2(High)			Set effective	The shutdown setting takes effect immediately	Data structure	-	Data type	Uint32
	accessibility	RW	Can map	-	Related patterns	ALL	Data range	0 to 127 (units: encoder units	Factory setting	0
200B-3Bh	Name	Mechanical absolute position lower 32 bits Mechanical absolute position inc(Low)			Set effective	-	Data structure	-	Data type	Int32
	accessibility	RO	Can map	-	Related patterns	ALL	Data range	- (In: encoder units)	Factory setting	-
200B-3Dh	Name	Mechanical absolute position 32 bits higher Mechanical absolute position inc(High)			Set effective	-	Data structure	-	Data type	Int32
	accessibility	RO	Can map	-	Related patterns	ALL	Data range	(In: encoder units)	Factory setting	-
200B-4Eh	Name	Absolute encoder absolute position is 32 bits lower feedback postion of absolute encode(Low)			Set effective	-	Data structure	-	Data type	Int32
	accessibility	RO	Can map	TPDO	Correlation model	ALL	Data range	- (In: encoder units)	Factory setting	-

200B-50h	name	Absolute encoder absolute position 32 bits higher feedback postion of absolute encode(High)			Set effective	-	Data structure	-	Data type	Int32
	accessibility	RO	Can map	TPDO	Correlation model	ALL	Data range	- (In: encoder units)	Factory setting	-
200B-52h	Name	Rotating load single turn position low 32 bits Single feedback postion inc of rotating load(Low)			Set effective	-	Data structure	-	Data type	Uint 32
	accessibility	RO	Can map	TPDO	Correlation model	ALL	Data range	(In: encoder units)	Factory setting	-
200B-54h	Name	Rotating load single turn position 32 bits higher Single feedback postion inc of rotating load(High)			Set effective	-	Data structure	-	Data type	Uint32
	accessibility	RO	Can map	TPDO	Correlation model	ALL	Data range	- (In: encoder units)	Factory setting	-
200B-56h	Name	Rotate load one turn position Single feedback postion of rotating load			Set effective	-	Data structure	-	Data type	Uint 32
	Accessibility	RO	Can map	TPDO	Correlation model	ALL	Data range	- Factory (unit: refers to setting order unit)		-

32767



6-40

2005-35h, 2005-37h, 2005-37h 0 2005-33h, 2005-34h

$R_E=2^{23}$
R_E
R_M
2005-35h
2005-37h
0
R_M= 2005-37h
2-^{32}+2005-35h
2005-35h, 2005-37h
0
$R_M=R_L$
2005-33h/2005-34h

B

200B-54h 2 ^{32}+ 200B-52h 0 RM

单圈位置（指令单位，200B-56h）范围 0~RM/（$\frac{B}{A}$）：

$$200B\text{-}56h=（200B\text{-}54h\times2^{32}+200B\text{-}52h）/（\frac{B}{A}）$$

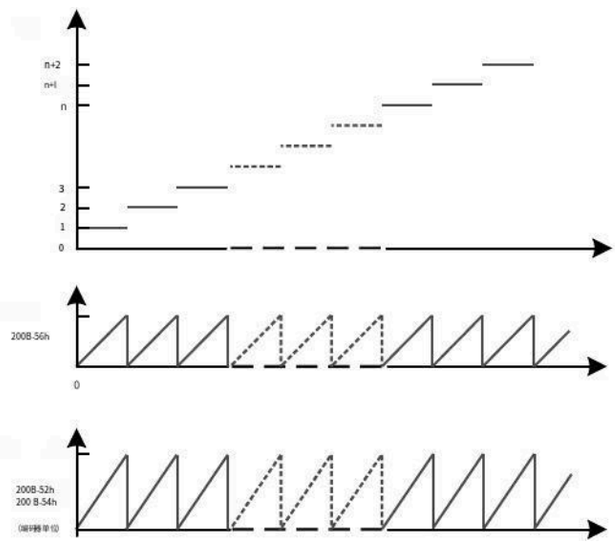
假设机械绝对位置 (200B-3Bh 和 200B-3Dh) 为 PM（P_M=200B-3Dh×2^{32}+ 200B-3Bh）：

$$PM=转台圈数\times RM+（200B\text{-}54h\times2^{32}+200B\text{-}52h）$$

B

200B-08h

$$200B\text{-}08h=PM/（\frac{B}{A}）=转台圈数\times RM/（\frac{B}{A}）+200B\text{-}56h$$



6-41

Er.735( )

e

200A-25h Er.735( )

200A-25h	name	Absolute encoder multi-turn overflow fault selection Multi-turn encoder overflow fault			Set effective	The shutdown setting takes effect immediately	Data structure	-	Data type	Uint16
	accessibility	RW	Can map	NO	Correlation model	ALL	Data range	0 ~ 1	Factory Settings	0

f

200D-15h

200D-15h	Name	Absolute encoder reset enabled Multi-turn absolute encoder reset			Set effective	Stop Settings With immediate effect	Data structure	-	Data type	Uint16
	Accessibility	RW	Can map	-	Related patterns	ALL	Data range	0-2	Factory Settings	0

NOTE

6.12.2

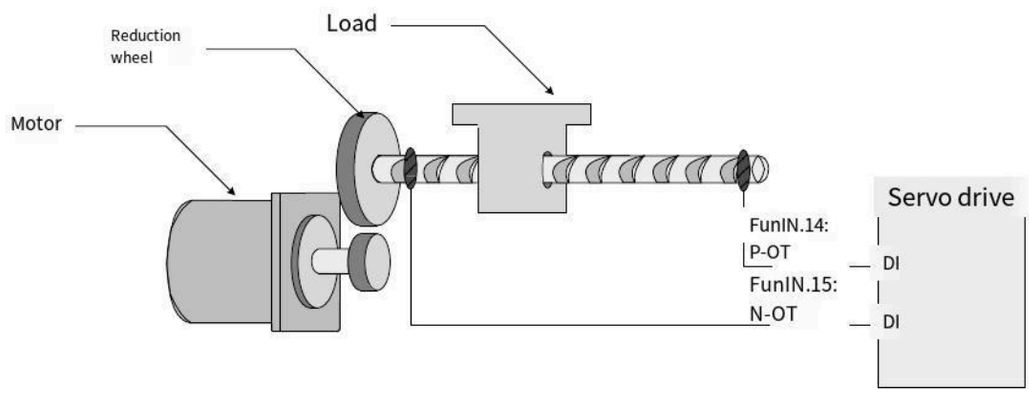
Er.731() 200D-15h=1 3.0V Er.730()

Er.730( )

Give attention to
◀ In the case of servo power failure, replacing the battery and powering on again will cause Er.731(encoder battery failure), multi-turn data will mutate, please set 200D-15h=1 to reset the encoder fault, and re-perform the origin return function operation; ◀ When the driver is powered off, please ensure that the maximum speed of the motor does not exceed 6000rpm to ensure that the encoder position information is accurately recorded; ◀ During storage, please store according to the specified ambient temperature, and ensure that the battery contact is reliable and the power is sufficient, otherwise it may lead to the loss of the encoder position information.

6.13

, CN1



6-42

	Traditional hardware limit function		Soft limit function
1	Only limited to linear motion, single rotation motion	1	It can be used not only in linear motion, but also in rotation mode
2	Need to have external installation mechanical limit switch	2	No hardware wiring is required to prevent misoperation caused by poor line contact
3	Unable to determine the mechanical skid anomaly	3	Internal position comparison to prevent mechanical slippage resulting in abnormal action
4	When the power is off, the machine moves out of the limit, can not judge, can not alarm		

,, 200A-02h=2

200A-02h	name	Absolute location restriction Settings Absolute Position Limit Set			Setting in effect	Shutdown Settings With immediate effect	Data structure	-	Data type	Uint16
	Accessibility	RW	Can map	-	Related patterns	ALL	Data range	0-2	Factory Settings	0

607D-01h	name	Minimum software absolute location limit Min Position limit			Setting in effect	Run Settings shutdown takes effect	Data structure	-	Data type	int32
	Accessibility	RW	Can map	RPDO	Correlation model	ALL	Data range	- 231 - (231-1) (Unit of instruction)	Factory Settings	- 231.

200A-02h=0

200A-02h=1

200A-02h=2

607D-02h	name	Maximum software absolute location limit Max Position limit			Setting in effect	Run Settings Shutdown effect	Data structure	-	Data type	int32
	Accessibility	RW	Can map	RPDO	Correlation model	ALL	Data range	- 231 - (231-1) (Unit of instruction)	Factory Settings	231-1

1(internal limit active)

6064(200B-08h)

NOTE

607D-01 607D-02 607D-01 607D-02, Er.D09 607C

Er.D10

7

7.1
... 251

7.2
1000h
... 254

7.3
2000h
... 266

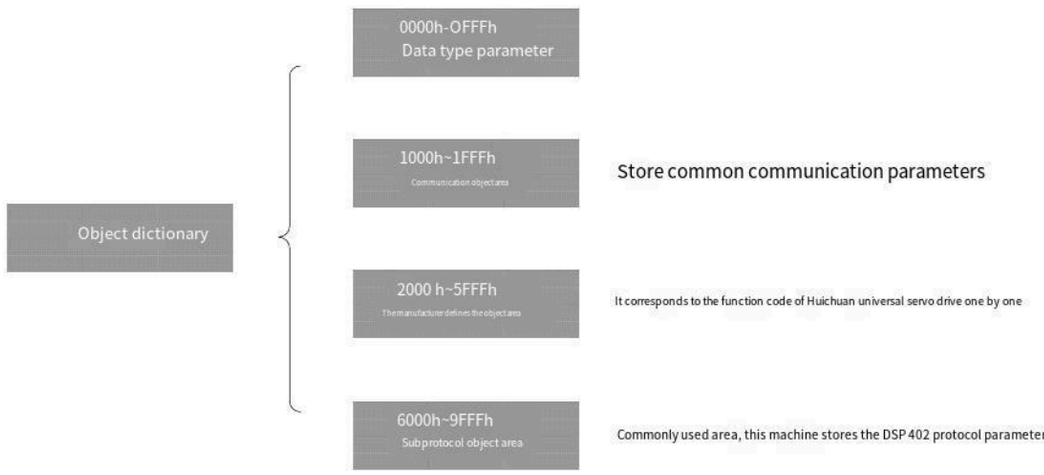
7.4
6000h
... 335

7.1

CANopen 16 8

7-1

index	Objects
000	Unused
0001h-001Fh	Static data type (standard data type, such as Boolean, Integer16)
0020h-003Fh	Complex data types (predefined structures composed of simple types such as PDOCommPar, SDOParmeter)
0040h—005Fh	Complex data types specified by the manufacturer
0060h-007Fh	Static data type specified by the device subprotocol
0080h-009Fh	Complex data types specified by device subprotocols
00AOh-OFFFh	reserve
1000h-1FFFh	Communication subprotocol areas (such as device type, error register, number of supported Pdos)
2000h-5FFFh	Manufacturer specific subprotocol areas (e.g., function code mapping)
6000h-9FFFh	Standard device subprotocol areas (e.g. DSP-402 protocol)
A000h-FFFFh	reserve



7-1 CANopen

Serv
o

u

= 0x2000
+

= +1 H02-10 2002-0Bh

607Dh

index	Subindex	Name	Meaning
607Dh	00h	number of elements	The number of object data, excluding itself
607Dh	01h	Min position limit	Minimum position restriction (absolute position mode)
607Dh	02h	Max position limit	Maximum position limit (Absolute position mode)

7-1

7-2

category	Meaning	DS301 value
VAR	A single simple value containing the data types Int8, Uint16, String, and so on	7
ARR	Data blocks of the same type	8
REC	Has different types of data blocks	9

7-3

7-3

Data type	Numeric range	Data length	DS301 value
Int8	- 128 ~ + 127	1 byte	0002
Int16	- 32768 ~ + 32767	2 bytes	0003
Int32	- 2147483648 ~ + 2147483647	4 bytes	0004
Uint8	0-255.	1 byte	0005
Uint16	0 ~ 65535	2 bytes	0006
Uint32	0 ~ 4294967295	4 bytes	0007
String	ASCII	-	0009

7-4

7-4

accessibility	Instructions
RW	read-write
WO	Write only
RO	Read only
CONST	Constant, read only

7-5

7-5

Can map	Instructions
NO	Cannot be mapped to PDO
RPDO	Can be used as an RPDO
TPDO	Can be used as TPDO

7-6

7-6

Set conditions	Instructions
Stop Settings	Drive not in running state is parameter editable
Run Settings	The drive is in any state and the parameters can be edited

Conditions for validity	Instructions
Effective immediately	The Settings take effect immediately after the parameters are edited
Shutdown takes effect	After parameter editing is complete, wait until the drive is not in the running state to set the value
Power on again	Once the parameters have been edited, power back on the drive and the set value takes effect Note: Usually after the value of such parameter is changed, the driver prompts Er.941(the change of parameter needs to be powered on again to take effect)

7-7

7-7

Correlation model	Instructions
-	Parameters are independent of the control mode
ALL	The parameters are related to all control modes
PP/PV/PT/HM/CSP/CSV/CST	Parameters are related in the corresponding pattern

NOTE

- When a parameter is modified by SDO and the set value is out of the data range, the driver will return the SDO transmission abort code, and the set value is invalid.
- When modifying parameters via PDO, the drive does not detect if the set value is out of the data range.

7.2 1000h

index	Name	Device Type Device Type					Data structure	VAR	Data type	Uint32
1000h	accessibility	RO	Ability to map	NO	Correlation model	-	Data range	-	Factory Settings	0x00020192

Describes the subprotocol type of the CoE device.

Bit	name	Description
0 ~ 15	Device subprotocol	402(192h) : Device Sub-protocol
16-23	Type	02: Servo drive
25 ~ 31	Patterns	Manufacturer custom

Index	Name	Manufacturer Device Name					Data structure	-	Data type	-
1008h	accessibility	RO	Can map	NO	Correlation model	-	Data range	-	Factory Settings	-ECAT

Describes the manufacturer's device name.

index	Name	Manufacturer Hardware Version					Data structure	-	Data type	-
1009h	accessibility	RO	Can map	NO	Correlation model	-	Data range	-	Factory Settings	Determined by the drive hardware version

Describe the hardware version of the manufacturer's device.

index	Name	Manufacturer Software Version. Manufacturer software version					Data structure	-	Data type	-
100Ah	accessibility	RO	Can map	NO	Correlation model	-	Data range	-	Factory Settings	Determined by the drive software version

Describe the software version of the manufacturer's device.

index	Name	ID 对象 1018h Identity Object					Data structure	REC	Data type	OD Data Type
1018h	accessibility	RO	Can map	NO	Correlation model	-	Data range	OD data range	Factory Settings	OD default

Describes the device information.

Subindex 00h	Name	ID The largest subindex number contained in the object					Data structure	-	Data type	Uint8
	accessibility	RO	Can map	NO	Correlation model	-	Data range	4	Factory Settings	4

Subindex 01h	Name	Vendor ID Vendor ID					Data structure	-	Data type	Uint 32
	accessibility	RO	Can map	NO	Correlation model	-	Data range	-	Factory Settings	Ox00100000

Indicates the drive series number.

Subindex 02h	Name	Product Code Product Code					Data structure	-	Data type factory Settings	Uint 32
	accessibility	RO	Can map	NO	Correlation model	-	Data range	-		786696

Indicate drive internal coding.

Subindex 03h	Name	Revision Number Revision Number					Data structure	-	Data type factory Settings	Uint 32
	Accessibility	RO	Can map	NO	Correlation model	-	Data range	-		65537

Indicate the upgrade record number of the drive software.

Bit	Description
0 ~ 15	Device function program number.

index	Name	Manufacturer Software Version. Manufacturer software version					Data structure	REC	Data type	OD Data Type
1C00h	accessibility	RO	Can map	NO	Correlation model	-	Data range	OD data range	Factory Settings	OD default
Describes the device information.										

Subindex 00h	Name	Maximum subindex number for the type of synchronous management communication					Data structure	-	Data type	Uint8
	accessibility	RO	Can map	NO	Correlation model	-	Data range	4	Factory Settings	4

Subindex 01h	Name	SMO Communication Type SMO					Data structure	-	Data type factory	Uint 8
	accessibility	RO	Can map	NO	Correlation model	-	Data range	-	Settings	0x01
SMO Communication type: Receiver email address.										

Subindex 02h	Name	SM1 Communication Type SM1					Data structure	-	Data type factory	Uint 8
	accessibility	RO	Can map	NO	Correlation model	-	Data range	-	Settings	0x02
SM1 Communication type: Sending email address.										

Subindex 03h	Name	SM2 Communication Type Indicates whether SM2 can be mapped					Data structure	-	Data type	Uint 8
	Accessibility	RO		NO	Correlation model	-	Data range	-	Factory Settings	0x03
SM2 Communication type: Process data output.										

Subindex 04h	Name	SM3 Communication Type SM3					Data structure	-	Data type factory	Uint 8
	Accessibility	RO	Can map	NO	Correlation model	-	Data range	-	Settings	Ox04
SM3 Communication type: Process data input.										

Index 1600h	Name	RPDO1 Mapping object 1st Receive PDO Mapping					Data structure	REC	Data Type OD Data range Factory Settings	Uint32
	accessibility	RW	Can map	NO	Correlation model	-	Data range			OD Default value
Set RPDO1's mapping object.										

Subindex 00h	Name	Number of mapping objects supported by RPDO1					Data structure	-	Data type	Uint8
	accessibility	RW	Can map	NO	Correlation model	-	Data range	0 ~ 10	Factory Settings	3

Subindex 00h	Name	Number of mapped objects supported by RPDO1 Can be mapped					Data structure	-	Data type factory set	Uint8
	Accessibility			NO	Correlation model	-	Data range	0 ~ 10		3

Subindex 01h	Name	RW The first Mapped Object 1st Output Object to be Mapped					Data structure	-	Data type factory set	Uint 32
	Accessibility	RW	Can map	NO	Correlation model	-	Data range	0-4294967295.		60400010

Subindex 02h	Name	Second Mapped Object 2nd Output Object to be Mapped					Data structure	-		Uint 32
	Accessibility	RW	Can map	NO	Correlation model	-	Data range	Data Type 0 to 4294967295 Data type	Factory Settings	607A0020

Subindex 03h	Name	The third Mapped Object 3rd Output Object to be Mapped					Data structure	-		Uint 32
	accessibility	RW	Can map	NO	Correlation model	-	Data range	0 ~ 4294967295	Factory Settings	60B80010

subindex	The fourth to tenth mapped object names					Data structure	-			
4th~10th	Data type Uint 3204h~ Output Object to be Mapped OAh									
	Accessibility RW	Ability to map NO		Related patterns ALL						-
Data range 0-4294967295 Factory Set Index										

	Name	RPDO1 Mapping Object 258th Receive PDO Mapping data structure					REC			
Data type Uint321701h Accessibility RO		Can map NO		Related patterns	-					
Data Range OD Data Range Factory setting OD Default values reflect RPDO258 mapping objects. Data structure										

Subindex 00h	Name	Number of mapping objects supported by RPDO258					-	Data type	Uint8	
	accessibility	RO	Can map	NO	Correlation model	-	Data range	-	Factory Settings	4

Subindex 01h	Name	The first Mapped Object 1st Output Object to be Mapped				Data structure	-	Data type	Uint 32	
	accessibility	RO	Can map	NO	Correlation model	-	Data range	0-4294967295.	Factory Settings	60400010

Subindex 02h	Name	Second Mapped Object 2nd Output Object to be Mapped				Data structure	-	Data type factory set	Uint 32	
	accessibility	RO	Can map	NO	Correlation model	-	Data range	0-4294967295.		607A0020

Subindex 03h	Name	3rd Output Object to be Mapped				Data structure	-	Data type	Uint 32	
	accessibility	RO	Can map	NO	Correlation model	-	Data range	0-4294967295.	Factory Settings	60B80010

Subindex 04h	Name	Fourth Mapped Object 4th Output Object to be Mapped				Data structure	-	Data type	Uint 32	
	accessibility	RO	Can map	NO	Correlation model	-	Data range	0-4294967295.	Factory Settings	60FEO120

Index 1702h	Names	RPDO1 Mapping Object 259th Receive PDO Mapping				Data structure	REC	Data type	Uint32	
	accessibility	RO	Can map	NO	Correlation model	-	Data range	OD data range	Factory Settings	OD default
Mapping object reflecting RPDO259.										

Subindex 00h	Name	Number of mapping objects supported by RPDO259				Data structure	-	Data type	Uint8	
	accessibility	RO	Can map	NO	Correlation model	-	Data range	-	Factory Settings	7

Subindex 01h	Name	The first Mapped Object 1st Output Object to be Mapped				Data structure	-	Data type factory set	Uint 32	
	accessibility	RO	Can map	NO	Correlation model	-	Data range	0-4294967295.		60400010

Subindex 02h	Name	Second Mapped Object 2nd Output Object to be Mapped				Data structure	-	Data type factory set	Uint 32	
	accessibility	RO	Can map	NO	Correlation model	-	Data range	0-4294967295.		607A0020

Subindex 03h	Name	3rd Output Object to be Mapped			Data structure related schema		-	Data type	Uint 32	
	accessibility	RO	Can map	NO		-	Data range	0-4294967295.	Factory Settings	60FF0020

Subindex 04h	Name	Fourth Mapped Object 4th Output Object to be Mapped				Data structure	-	Data type factory set	Uint 32	
	accessibility	RO	Can map	NO	Correlation model	ALL	Data range	0-4294967295.		60710010

Subindex 05h	Name	The 5th Output Object to be Mapped				Data structure	-	Data type factory set	Uint 32	
	accessibility	RO	Can map	NO	Correlation model	-	Data range	0-4294967295.		60600008

subindex	Name	6th Output Object to be Mapped data structure						-		
	Accessibility RO	Ability to map NO		Related patterns	-					

Data type Uint 3206h
Data range 0-4294967295 Factory Set 60B80010

subindex	Name	7th Output Object to be Mapped data structure						-		
	Accessibility RO	Ability to map NO		Related patterns	-					

Data type Uint 3207h
Data Range 0-4294967295
Factory Settings 607F0020RPDO1
Mapping Object 260th Receive

Index 1703h	Name	PDO Mapping Data structure						REC	Data Type	Uint32
	accessibility	RO	Can map	NO	Correlation model	-	Data Range	OD Data range	Factory Settings	OD default

Mapping object reflecting RPDO260.

Subindex 00h	Name	Number of mapping objects supported by RPDO260					Data structure	-		Uint8
	accessibility	RO	Can map	NO	Correlation model	-	Data range	Data Type 0-4294967295	Factory Setting	7

Subindex 01h	Name	The first Mapped Object 1st Output Object to be Mapped					Data structure	-		Uint 32
	accessibility	RO	Can map	NO	Correlation model	-	Data range	Factory setting		60400010

Subindex 02h	Name	Second Mapped Object 2nd Output Object to be Mapped					Data structure	Data type 0-4294967295		Uint 32
	accessibility	RO	Can map	NO	Correlation model	-	Data range	Factory Settings		607A0020

Subindex 03h	Name	3rd Output Object to be Mapped					Data structure	-	Data type	Uint 32
	accessibility	RO	Can map	NO	Correlation model	-	Data range	0-4294967295 Factory Settings		60FF0020

Subindex 04h	Name	Fourth Mapped Object 4th Output Object to be Mapped					Data structure	Data type 0-4294967295		Uint 32
	accessibility	RO	Can map	NO	Correlation model	-	Data range	Factory Settings		60600008

Subindex 05h	Name	The 5th Output Object to be Mapped					Data structure	Data types 0-4294967295		Uint 32
	accessibility	RO	Can map	NO	Correlation model	-	Data range		Factory Settings	60B80010

Subindex 06h	Name	6th Output Object to be Mapped					Data structure	-	Data type	Uint 32
	Accessibility	RO	Can map	NO	Correlation model	-	Data range	0-4294967295.	Factory Settings	60E00010

Subindex 07h	Name	7th Output Object to be Mapped					Data structure	Data type 0-4294967295		Uint 32
	accessibility	RO	Can map	NO	Correlation model	-	Data range	Factory Settings		60E10010

Index 1703h	Names	RPDO1 Mapping Object 261st Receive PDO Mapping					Data structure	REC	Data type factory set	Default Uint32OD value
	accessibility	RO	Can map	NO	Correlation model	-	Data Range	OD Data range		

Map object reflecting RPDO261.

Subindex 01h	Name	The first Mapped Object 1st Output Object to be Mapped					Data structure	-	Data type factory set	Uint 32
	accessibility	RO	Can map	NO	Correlation model	-	Data range	0-4294967295.		60400010

Subindex 02h	Name	Second Mapped Object 2nd Output Object to be Mapped					Data structure	-	Data type	Uint 32
	accessibility	RO	Can map	NO	Correlation model	-	Data range	0 ~ 4294967295	Factory Settings	607A0020

subindex	Name	Third Mapped Object 3rd Output Object to be Mapped data structure					-		
	Data type Uint 3203h Accessibility RO		Ability to map NO		Related patterns	-			
Data range 0-4294967295 Factory Set 60FF0020									
subindex									
	Name	Fourth Mapped Object 4th Output Object to be Mapped data structure					-		
	Data type Uint 3204h Accessibility RO		Ability to map NO		Related patterns	-	Data range 0-4294967295 Factory Settings		
60710010 Subindex									
	Names	5th Mapped Object 5th Output Object to be Mapped data structure					-		
	Data type Uint 3205h Accessibility RO		Ability to map NO		Related patterns	-	Data range 0-4294967295 Factory Settings		60600008

Subindex 06h	name	6th Output Object to be Mapped				Data structure	-	Data type	Uint 32
	accessibility	RO	Can map	NO	Correlation model	-	Data range	0-4294967295.	Factory Settings 60B80010

Subindex 07h	Name	7th Output Object to be Mapped				Data structure	-	Data type	Uint 32
	accessibility	RO	Can map	NO	Correlation model	-	Data range	0-4294967295.	Factory Settings 607F0020

Subindex 08h	Name	8th Output Object to be Mapped				Data structure	Data typē 0-4294967295 Factory Settings		Uint 32
	accessibility	RO	Can map	NO	Correlation model	-	Data range		60E00010

Subindex 09h	Name	9th Output Object to be Mapped				Data structure	-	Data type	Uint 32
	accessibility	RO	Can map	NO	Correlation model	-	Data range	0-4294967295.	Factory Settings 60E10010

Index 1705h	Names	RPDO1 Mapping Object 262nd Receive PDO Mapping				Data structure	REC	Data type	Uint32
	accessibility	RO	Can map	NO	Correlation model	-	Data range	OD data range	Factory Settings OD default
Mapping object reflecting RPDO262.									

Subindex 00h	Name	Number of mapped objects supported by RPDO262				Data structure	-	Data type	Uint8
	accessibility	RO	Can map	NO	Correlation model	-	Data range	-	Factory Settings 8

Subindex 01h	Name	1st Output Object to be Mapped				Data structure	-	Data type factory set	Uint 32
	Accessibility	RO	Can map	NO	Correlation model	-	Data range	0-4294967295.	60400010

Subindex 02h	Name	2nd Output Object to be Mapped				Data structure	-	Data type factory set	Uint 32
	accessibility	RO	Can map	NO	Correlation model	-	Data range	0-4294967295.	607A0020

Subindex 03h	Name	3rd Output Object to be Mapped				Data structure	-	Data type factory set	Uint 32
	accessibility	RO	Can map	NO	Correlation model	-	Data range	0-4294967295.	60FFO020

Subindex 04h	Name	4th Mapped Object 4th Output Object to be Mapped				Data structure	-	Data type	Uint 32
	accessibility	RO	Can map	NO	Correlation model	-	Data range		Factory Settings 60600008

Subindex 05h	Name	The 5th Output Object to be Mapped				Data structure	0-4294967295 Data type factory Settings		Uint 32
	Accessibility	RO	Can map	NO	Correlation model	-	Data range	0 ~ 4294967295	60B80010

subindex	Name	6th Output Object to be Mapped				Data structure	-	Data type	Uint 32
06h	accessibility	RO	Can map	NO	Correlation model	-	Data range	0-4294967295.	Factory Settings 60E00010

subindex	Name	7th Output Object to be Mapped data structure				-		
Data type Uint 320fh	Accessibility RO	Ability to map NO	Related patterns	-	Data range 0 to 4294967295 Factory Settings			

60E10010 Subindex

Data type Uint 3208h	Name	The 8th Mapped Object 8th Output Object to be Mapped data structure				-		
	Accessibility RO	Ability to map NO	Related patterns	-	Data range 0 to 4294967295 Factory set 60B20010			

Index 1A00h	Names	TPDO1 Mapping object 1st Transmit PDO Mapping				Data structure	Record	Data type	Uint32
	accessibility	RW	Can map	NO	Correlation model	-	Data range	OD data range factory Settings	OD Default
Set the mapping object of TPDO1.									

Subindex 00h	Name	Number of mapping objects supported by TPDO1				Data structure	-	Data type	Uint8
	accessibility	RW	Can map	NO	Correlation model	-	Data range	0 to 10	Factory Settings 7

Subindex 01h	Name	1st Output Object to be Mapped				Data structure	-	Data type Factory Settings	Uint 32
	accessibility	RW	Can map	NO	Correlation model	-	Data range	0-4294967295.	60410010

Subindex 02h	Name	2nd Output Object to be Mapped				Data structure	-	Data type	Uint 32
	accessibility	RW	Can map	NO	Correlation model	-	Data range	0-4294967295 Factory Settings	60640020

Subindex 03h	Name	3rd Output Object to be Mapped				Data structure	Data type 0-4294967295 Factory Settings		Uint 32
	accessibility	RW	Can map	NO	Related patterns	-	Data range		60B90010

Subindex 04h	Name	4th Mapped Object 4th Output Object to be Mapped				Data structure	-	Data type factory set	Uint 32
	Accessibility	RW	Can map	NO	Correlation model	-	Data range	0-4294967295.	60BA0020

Subindex 05h	Name	The 5th Output Object to be Mapped				Data structure	-	Data type factory set	Uint 32
	Accessibility	RW	Can map	NO	Correlation model	-	Data range	0-4294967295.	60BC0020

Subindex 06h	Name	6th Output Object to be Mapped				Data structure	-	Data type	Uint 32
	accessibility	RW	Can map	NO	Correlation model	-	Data range	0-4294967295.	Factory Settings 603F0010

Subindex 07h	Name	7th Output Object to be Mapped				Data structure	Data type 0-4294967295 Factory Settings		Uint 32
	accessibility	RW	Can map	NO	Correlation model	-	Data range		60FD0020

Subindex 08h	Name	8th Output Object to be Mapped				Data structure	-	Data type	Uint 32
	accessibility	RW	Can map	NO	Correlation model	-	Data range	0-4294967295.	Factory Settings -

Subindex 09h	Name	9th Output Object to be Mapped				Data structure	-	Data type factory set	Uint 32
	Accessibility	RW	Can map	NO	Correlation model	-	Data range	0-4294967295.	-

Subindex 09h	Name	10th mapping object 10th Output Object to be Mapped				Data structure	-	Data type	Uint 32
	accessibility	RW	Can map	NO	Correlation model	-	Data range	0-4294967295 Factory Settings	-

index	Name	TPDO258 Mapping Object 258thTransmit PDO Mapping					Data structure	REC	Data type	Uint32
1B01h	accessibility	RO	Can map	NO	Correlation model	-	Data range	OD data range	Factory Settings	OD default
Default Set the mapping object of TPDO258.										

Subindex

The data type is Uint800h	Name	Number of mapping objects supported by TPDO258 data structure					-		
	Accessibility RO	Ability to map NO		Related patterns	-	Data range	-	Factory Settings	

8 Name

Subindex 01h		The 1st Mapped Object 1st Output Object to be Mapped				Data structure	-	Data type	Uint 32
	accessibility	RO	Can map	NO	Correlation model	-	Data range	0-4294967295 Factory set data type	603F0010

Subindex 02h	Name	2nd Output Object to be Mapped				Data structure	-		Uint 32
	accessibility	RO	Can map	NO	Correlation model	-	Data range	0-4294967295.	Factory Settings	60410010

Subindex 03h	Name	3rd Output Object to be Mapped				Data structure	-	Data type	Uint 32
	accessibility	RO	Can map	NO	Correlation model	-	Data range	0 ~ 4294967295	Factory Settings	60640020

Subindex 04h	Name	4th Mapped Object 4th Output Object to be Mapped				Data structure	-	Data type factory	Uint 32
	accessibility	RO	Can map	NO	Correlation model	-	Data range	0-4294967295.	Settings	60770010

Subindex 05h	Name	The 5th Output Object to be Mapped				Data structure	-	Data type	Uint 32
	accessibility	RO	Can map	NO	Correlation model	-	Data range	0 ~ 4294967295	Factory Settings	60F40020

Subindex 06h	Name	6th Output Object to be Mapped				Data structure	-	Data type Factory	Uint 32
	Accessibility	RO	Can map	NO	Correlation model	-	Data range	0-4294967295.	Settings	60B90010

Subindex 07h	Name	7th Output Object to be Mapped				Data structure	-	Data type	Uint 32
	Accessibility	RO	Can map	NO	Correlation model	-	Data range	0-4294967295.	factory set	60BA0020

Subindex 08h	Name	8th Output Object to be Mapped				Data structure	-	Data type	Uint 32
	accessibility	RO	Can map	NO	Correlation model	-	Data range	0-4294967295 Factory Settings		60FD0020

Index 1B01h	Names	TPDO259 Mapping Object 259thTransmit PDO Mapping				Data Structure	REC Data Type OD Data range Factory Settings		It is the default value of Uint32OD
	Accessibility	RO	Can map	NO	Correlation model	-	Data range		
Set the mapping object of TPDO259.									

Subindex 00h	Name	Number of mapping objects supported by TPDO259			Data structure related schema		-	Data Types	Uint8
	Accessibility	RO	Can map	NO		-	Data range	-	Factory Settings	9

Subindex 01h	Name	1st Output Object to be Mapped				Data structure	-	Data type factory	Uint 32
	Accessibility	RO	Can map	NO	Correlation model	-	Data range		Settings	603F0010

Subindex 02h	Name	2nd Output Object to be Mapped				Data structure	0-4294967295 Factory Settings	Data type	Uint 32
	accessibility	RO	Can map	NO	Correlation model	-	Data range	0-4294967295.		60410010

subindex	Name	3rd Mapped Object 3rd Output Object to be Mapped data structure					-		
	Data type Uint 3203h								
	Accessibility RO	Ability to map NO		Related patterns	-	Data range	0-4294967295	Factory Settings	

60640020 Subindex

	Name	4th Mapped Object 4th Output Object to be Mapped data structure					-		
	Data type Uint 3204h								
	Accessibility RO	Ability to map NO		Related patterns	-	Data range	0-4294967295	Factory Settings	

60770010 Subindex

	Name	5th Mapped Object 5th Output Object to be Mapped data structure					-		
	Data type Uint 3205h								
	Accessibility RO	Ability to map NO		Related patterns	-	Data range	0-4294967295	Factory Settings	

60610008 Name

Subindex 06h		6th Output Object to be Mapped				Data structure	-	Data type	Uint 32
	accessibility	RO	Can map	NO	Correlation model	-	Data range	0-4294967295.	Factory Settings	60B90010

Subindex 07h	Name	7th Output Object to be Mapped				Data structure	-	Data type factory set	Uint 32
	accessibility	RO	Can map	NO	Correlation model	-	Data range	0-4294967295.		60BA0020

Subindex 08h	Name	7th Output Object to be Mapped				Data structure	Data typē 0-4294967295 Factory Settings		Uint 32
	accessibility	RO	Can map	NO	Correlation model	-	Data range			60BC0020

Subindex 09h	Name	9th Output Object to be Mapped				Data structure	-	Data type	Uint 32
	accessibility	RO	Can map	NO	Correlation model	-	Data range	0-4294967295.	Factory Settings	60FD0020

Index 1B03h	Names	TPDO260 Mapping Object 260th Transmit PDO Mapping				Data Structure	REC	Data type	Uint32
	accessibility	RO	Can map	NO	Correlation model	-	Data range	OD data range	Factory Settings	OD default
Set the mapping object of TPDO260.									

Subindex 00h	Name	Number of mapping objects supported by TPDO260				Data structure	-	Data type	Uint8
	accessibility	RO	Can map	NO	Correlation model	-	Data range	-	Factory Settings	10

Subindex 01h	Name	1st Output Object to be Mapped				Data structure	-	Data type factory set	Uint 32
	accessibility	RO	Can map	NO	Correlation model	-	Data range	0-4294967295.		603F0010

Subindex 02h	Name	2nd Output Object to be Mapped				Data structure	-	Data type factory set	Uint 32
	accessibility	RO	Can map	NO	Correlation model	-	Data range	0-4294967295.		60410010

Subindex 03h	Name	3rd Output Object to be Mapped				Data structure	-	Data type factory set	Uint 32
	accessibility	RO	Can map	NO	Correlation model	-	Data range	0-4294967295.		60640020

Subindex 04h	Name	4th Mapped Object 4th Output Object to be Mapped				Data structure	-	Data type	Uint 32
	accessibility	RO	Can map	NO	Correlation model	-	Data range		Factory Settings	60770010

Subindex 04h	Name	4th Mapped Object 4th Output Object to be Mapped				Data structure	0-4294967295 Data type factory Settings		Uint 32
	Accessibility	RO	Can map	NO	Correlation model	-	Data range	0 ~ 4294967295		60770010

Subindex 06h	Name	6th Output Object to be Mapped				Data structure	-	Data type	Uint 32
	accessibility	RO	Can map	NO	Correlation model	-	Data range	0-4294967295.	Factory Settings	60610008

subindex	Name	7th Output Object to be Mapped data structure					-			
Data type Uint 3207h	Accessibility RO		Ability to map NO		Related patterns	-				
Data range 0 to 4294967295 Factory Set 60B90010 subindex										
Data type Uint 3208h	Name	7th Output Object to be Mapped data structure					-			
	Accessibility RO	Data range 0 to 4294967295 Factory Setting 60BA0020	Ability to map NO		Related patterns	-				
Subindex 09h	Name	9th Output Object to be Mapped. 9					Data structure	-	Data type	Uint 32
	accessibility	RO	Can map	NO	Correlation model	-	Data range	0 ~ 4294967295	Factory Settings	60BC0020
Subindex OAh	Names	10th mapping object 10th Output Object to be Mapped					Data structure	-	Data type factory set	Uint 32
	accessibility	RO	Can map	NO	Correlation model	-	Data range	0 ~ 4294967295		60FD0020
Index 1B04h	Names	TPDO261 Mapping object 261st Transmit PDO Mapping					Data structure	REC	Data type	Uint32
	accessibility	RO	Can map	NO	Correlation model	-	Data range	OD data range factory Settings		OD Default
Set the mapping object of TPDO261.										
Subindex 00h	Name	Number of mapping objects supported by TPDO261					Data structure	-	Data type	Uint8
	accessibility	RO	Can map	NO	Correlation model	-	Data range	-	Factory Settings	10
Subindex 01h	Name	1st Output Object to be Mapped					Data structure	-	Data type	Uint 32
	accessibility	RO	Can map	NO	Correlation model	-	Data range	0-4294967295.	Factory Settings	603F0010
Subindex 02h	Name	2nd Output Object to be Mapped					Data structure	-	Data type factory Settings	Uint 32
	Accessibility	RO	Can map	NO	Correlation model	-	Data range	0 ~ 4294967295		60410010
Subindex 03h	Name	3rd Output Object to be Mapped					Data structure	-	Data type	Uint 32
	accessibility	RO	Can map	NO	Correlation model	-	Data range	0 ~ 4294967295	Factory Settings	60640020
Subindex 04h	Name	4th Mapped Object 4th Output Object to be Mapped					Data structure	-	Data type factory set	Uint 32
	Accessibility	RO	Can map	NO	Correlation model	-	Data range	0-4294967295.		60770010
Subindex 05h	Name	The 5th Output Object to be Mapped					Data structure	-	Data type	Uint 32
	accessibility	RO	Can map	NO	Correlation model	-	Data range	0 ~ 4294967295	Factory Settings	60610008
Subindex 06h	Name	6th Output Object to be Mapped					Data structure	-	Data type	Uint 32
	accessibility	RO	Can map	NO	Correlation model	-	Data range		Factory Settings	60F40020
Subindex 07h	Name	7th Output Object to be Mapped					Data structure	0 to 4294967295 Data Type 0 to 4294967295 Factory set data type		Uint 32
	accessibility	RO	Can map	NO	Correlation model	-	Data range			60B90010
Subindex 08h	Name	7th Output Object to be Mapped					Data structure	-		Uint 32
	accessibility	RO	Can map	NO	Correlation model	-	Data range	0-4294967295.	Factory Settings	60BA0020

Subindex 09h	Name	9th Output Object to be Mapped					Data structure	-	Data type	Uint 32
	accessibility	RO	Can map	NO	Correlation model	-	Data range	0-4294967295.	Factory Settings	60BC0020

Subindex OAh	Names	10th mapping object 10th Output Object to be Mapped					Data structure	-	Data type	Uint 32
	accessibility	RO	Can map	NO	Correlation model	-	Data range	0-4294967295 Factory Settings		606C0020

Index 1C12h	Names	Sync Management 2_RPDO allocation Sync Manager 2 RPDO Assignment					Data structure	ARR	Data type	Uint16
	accessibility	RW	Can map	NO	Correlation model	-	Data range	OD data range factory Settings		OD Default
Set RPDO's assigned object index.										

Subindex 00h	Name	Sync Management 2 Maximum subindex number assigned by RPDO					Data structure	-	Data type	Uint8
	accessibility	RW	Can map	NO	Correlation model	-	Data range	0 ~ 1	Factory Settings	1

Subindex 01h	Name	Index of the object assigned by the RPDO of RPDO Assignment					Data structure	-	Data type	Uint16
	accessibility	RW	Can map	YES	Correlation model	-	Data range	0 ~ 65535	Factory Settings	5889

Set the index of the RPDO's allocated object. Follow these steps:

1) It must be configured when the EtherCAT state machine is in Pre-Operation (P on the panel)

2) If the object assigned by RPDO is selected directly using twinCAT upper computer software, operation 1C12h is not required, otherwise, configure PDO in the following order

① 1C12-00h Write the value 0

②1C12-01h write to pre-used RPDOx(1600/1701~1705)

③ If you choose one of 1701~1705 as RPDO, the mapping object cannot be modified, and go to Step 5 directly. If you choose 1600 as RPDO, write the 00h sub-index value of RPDOx to 0, and then write the mapping object in 01~0Ah:

Bit31~bit16	bit15~bit8	bit7~bit0
index	Subindex	Object length

Then go to step ④

④ After writing mapping objects in 1600, write number of mapping objects in 1600-00h ⑤ Write 1 in 1C12-00h, the RPDO configuration is complete

Index 1C13h	Names	Manage 2_TPDO allocations synchronously Sync Manager 2 TPDO Assignment					Data structure	ARR	Data type	Uint16
	accessibility	RW	Can map	NO	Correlation model	-	Data range	OD data range	Factory Settings	OD default
Set the assigned object index of TPDO.										

Subindex 00h	Name	Sync Management 2 Maximum subindex number assigned by TPDO					Data structure	-	Data type	Uint8
	accessibility	RW	Can map	NO	Correlation model	-	Data range	0 ~ 1	Factory Settings	1

TPDO
Index
-
of TPDOAssignment
Uint16

01h
RW
YES
-
0 65535
6913

TPDO

1)

EtherCAT
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P)
2)
1C13h
PDO

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①1C13-00h
0

T
P
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②1C13-01h

1B01 1B04

3.

TPDOx(1A00/1B01 1

0
1
0
A
h

5.
1A00
TPDO
1A00
00h

Bit31 bit16
bit15 bit8
bit7 bit0

(4)

④1A00
1A00-00h

⑤ If 1 is written in 1C13-00h, the TPDO configuration is complete.

Index 1C32h	Names	Sync Management 2 Sync output parameters Sync Manager 2 output Paramater					Data structure	REC	Data type	Uint16
	accessibility	RO	Can map	NO	Correlation model	-	Data range	OD data range factory Settings		OD Default
Describe the output parameters of SM2.										

Subindex 00h	Name	Sync Management 2 Maximum subindex number of the sync parameter					Data structure	-	Data type factory	Uint8
	accessibility	RO	Can map	NO	Correlation model	-	Data range	-	Settings	32

Subindex 01h	Name	Synchronization Type					Data structure	-	Data type factory	Uint 16
	accessibility		Can map	NO	Correlation model	-	Data range	-	Settings	2
ROOx0002 indicates that SM2's synchronization type is Distributed Clock SYNC 0 Mode (DC SYNC O Mode).										

Subindex 02h	Name	Cycle Time (in ns nanoseconds					Data structure	-	Data type factory	Uint 32
	Accessibility	RO	Can map	NO	Correlation model	-	Data range	-	Settings	0
Indicates the period of DC SYNC 0.										

Subindex 09h	Name	DelayTime (in ns nanoseconds)					Data structure	-	Data type	Uint 32	
	accessibility	RO	Can map	NO	Correlation model	-	Data range	-	Factory Settings	-	

Subindex 20h	Name	Sync Error. Sync Error					Data structure	-	Data type	BOOL	
	accessibility	RO	Can map	NO	Correlation model	-	Data range	-	Factory Settings	-	

Reflects whether a sync error is currently occurring.

True: Synchronization is active and no synchronization error occurs

False: Synchronization is not activated or a synchronization error occurs.

Index 1C33h	Names	Manage synchronization 2 Synchronize input parameters Sync Manager 2 input Paramater					Data structure	REC		OD data type Data Type OD	
	Accessibility	RO	Can map	NO	Correlation model	-	Data Range OD Data range factory Settings			Default value	

Describes the input parameters for SM2.

Subindex 00h	Name	Sync Management 2 Maximum subindex number of the sync parameter					Data structure	-	Data type	Uint8	
	accessibility	RO	Can map	NO	Correlation model	-	Data range	-	Factory Settings	32	

Subindex 01h	Name	Synchronization Type					Data structure	-	Data type	Uint 16	
	accessibility	RO	Can map	NO	Correlation model	-	Data range	-	Factory Settings	2	

Ox0002 indicates that the synchronization type of SM2 is Distributed Clock Synchronization 0 Mode (DC SYNC O Mode).

Subindex 02h	Name	Cycle Time (in ns nanoseconds)					Data structure	-	Data type	Uint 32	
	accessibility	RO	Can map	NO	Correlation model	-	Data range	-	Factory Settings	0	

Reflect the SYNC period of DC SYNC 0.

Subindex 04h	Name	Supported Synchronization type Synchronization Types Supported					Data structure	-	Data type	Uint 16	
	accessibility	RO	Can map	NO	Correlation model	-	Data range	-	Factory Settings	4	

Reflect the type of distributed clock. 0x0004 represents
Distributed Clock SYNC 0 Mode (DC SYNC O Mode).

Subindex 05h Note:	Name	Minmum Cycle Time					Data structure	-	Data type factory	Uint 32	
	Accessibility	RO	Can map	NO	Correlation model	-	Data range	-	Settings	125000	

Reflects the minimum synchronization period supported by the slave station, in ns.

The minimum synchronization period supported by the bus series servo driver is 125000ns, below this value, the network can not enter the OP state.

Subindex 06h	Name	Calculate with copy time Minmum Cycle Time (in ns nanoseconds)					Data structure	-	Data type	Uint 32	
	accessibility	RO	Can map	NO	Correlation model	-	Data range	-	Factory Settings		

Reflects the time the microprocessor copies data from sync management to local.

Subindex 09h	Name	DelayTime (in ns nanoseconds)					Data structure	-	Data type	Uint 32	
	accessibility	RO	Can map	NO	Correlation model	-	Data range	-	Factory Settings		

Subindex 20h	Name	Sync Error. Sync Error					Data structure	-	Data type	BOOL
	accessibility	RO	Can map	NO	Correlation model	-	Data range	-	Factory Settings	

Indicates whether a synchronization error occurs.

True: Synchronization is active and no synchronization error occurs

False: Synchronization is not activated or a synchronization error occurs.

7.3 2000h

And: servo motor parameters

2000h

Index 2000h	Name	Servo motor parameter Servo Motor Parameters			Set in effect	-	Data structure	ARR	Data type	Uint16
	accessibility	-	Ability to map	YES	Correlation model	-	Data range	OD data range	Factory Settings	OD Default f

Reactive servo motor parameters.

Subindex 00h	Name	Maximum subindex Number Number of Entries			Set the effective mode	-	Data structure	-	Data type	Uint8
	Accessibility	RO	Can map	NO		-	Data range	-	Factory Settings	6

Subindex 01h	Name	Motor number Motor SN			Set in effect	Shutdown Settings power up again	Data structure	-	Data type	Uint16
		RW	Can map	-	Related patterns	-	Data range	0 ~ 65535	factory set	14000H

Set the servo motor number.

Set value	Motor number	Remarks
		-

Motor number set incorrectly, Er.120(Product matching failure) will occur.

Subindex 03h	Name	Non-labeled Customized motor SN			Set effectuation related modes	-	Data structure	-	Data type	Uint16
	accessibility	RO	Can map	-		-	Data range	0-65535.	Factory Settings	OH

Displays the software number of the non-standard version in hexadecimal format. For bus series drives, display type: 6XX.YY. XX: Fixed number for non-standard software. YY: Upgrade record number of non-standard software.

Subindex 05h	Name	Encoder Version| Set to take effect				-	Data structure	-	Data type	Uint16
	accessibility	RO	Can map	-	Related patterns	-	Data range	0-65535.	Factory Settings	0

For bus series drives, display the software version number of the encoder. Display type: 2XXX.Y, 1 decimal place

subindex 06h	Name	Bus motor Model number Bus motor SN			Settings in effect	-	Data structure	-	Data type	Uint16
	Accessibility	RO	Can map	-	Related patterns	-	Data range	0-65535. (Unit: w)	Factory Settings	0

For bus series drives, display the specific number of the bus motor, which is determined by the motor model and cannot be changed.

Index	Name	Driver parameter Servo Drive Parameters			Set in effect	-	Data structure	ARR	Data type	Uint16
2001h	accessibility	-	Ability to map	YES	Correlation model	-	Data range	D Data range	Factory Settings	OD default

Reaction driver parameters.

Subindex 00h	Name	Maximum subindex Number Number of Entries			Setting takes effect	-	Data structure	-	Data type	Uint8
	accessibility	RO	Can map	NO	Correlation model	-	Data range	-	Factory Settings	32

Subindex 01h	Name	MCU software version number DSP Software Version			Set effective	-	Data structure	-	Data type	Uint16
	accessibility	RO	Can map	-	Related patterns	-	Data range	0-65535.	Factory Settings	0

Display the MCU software version number.

Display format: XXXX.Y, 1 decimal place

Subindex 02h	Name	FPGA software version number Fpga Software Version			Set effective	-	Data structure	-	Data type	Uint16
	accessibility	RO	Can map	-	Related patterns	-	Data range	0-65535.	Factory Settings	0

Display the FPGA software version number.

Display format: XXXX.Y, 1 decimal place

Subindex 03h	Name	Servo drive Number Servo drive SN| Setting takes effect			Shutdown Settings Power on again		Data structure	-	Data type	Uint16
	accessibility	RW	Can map	-	Related patterns	-	Data range	0-65535.	Factory Settings	0

Set the number of the servo drive.

If the servo drive number is set incorrectly, Er.120(Product matching failure) will occur.

The servo drive main loop supply voltage does not meet the above specifications, will occur Er.420(main loop phase out fault) or Er.990(main loop phase out warning).

Note: *1: The power supply specification of the main loop of the driver is three-phase 220V, but in the case of 200A-01h=2, single-phase 220V can be used as the main loop power supply.

2002h

index	Name	Basic control parameters BASIC Control Parameters		Set effective	-	Data structure	ARR	Data type	Uint16
2002h	accessibility)		Ability to map	YES	Correlation model		Data range	OD data range	Factory Settings	OD default

Set basic control parameters.

Subindex 00h	Name	Maximum subindex Number Number of Entries		Setting takes effect	-	Data structure	-	Data type	Uint8
	accessibility	RO	Can map	NO	Correlation model	-	Data range	-	Factory Settings	35

Subindex 01h	Name	Control mode Select Control Mode		Setting takes effect	The shutdown setting takes effect immediately	Data structure	-	Data type	Uint16
	accessibility	RO	Can map	-	Related patterns	-	Data range	0 ~ 9	Factory Settings	9-EtherCAT

Select servo drive control mode.

Set value	Control mode	Remarks
0 to 8	Reserved parameters	Do not set
9	EtherCAT bus control mode	The servo drive is in EtherCAT bus control, status word bit9=1 for 6041h Refer to section 7.3~7.11 for the servo operation mode

The servo drive is controlled by EtherCAT bus, bit9 of status word 6041h =1; Refer to section 7.3~7.11 for the servo operation mode.

Subindex 02h	Name	Absolute Value system select Absolute system mode		Set effective	Shutdown Settings power up again	Data structure	-	Data type	Uint16
	accessibility	RW	Can map	-	Related patterns	ALL	Data range	0-2	Factory Settings	0

Set absolute value how the system will be used.

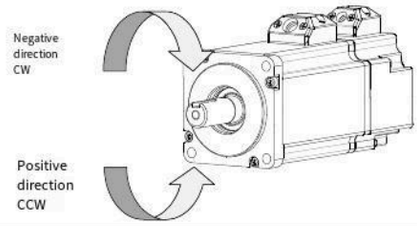
Setting a value	Absolute value system selection	Remarks
0	Incremental position pattern	The encoder is used as a bus incremental encoder without position power off memory function.
1	Absolute position linear pattern	The encoder is used as an absolute encoder with position outage memory function. Used for equipment load travel range is fixed, encoder multi-turn data will not overflow occasions.
2	Absolute position rotation mode	The encoder is used as an absolute encoder with position power off memory function. This mode is mainly used for the equipment load travel range is not limited, the number of motor rotation in one direction is less than 32767 occasions.
3	Absolute position linear mode, no encoder overflow alarm	The encoder is used as an absolute encoder and has position power off memory function to shield multi-turn data overflow alarm for occasions when the encoder multi-turn data will overflow

◆ Note:

Subindex 03h	Name	Rotate direction Select Rotatingdirection			Set to take effect	Shutdown Settings power up again	Data structure	-	Data type	Uint16
	accessibility	RW	Can map	-	Related patterns	ALL	Data range	0-1	Factory Settings	0

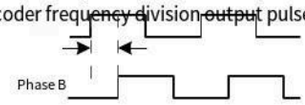
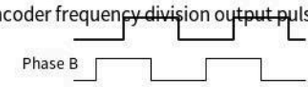
Set the positive direction of motor rotation when viewed from the motor shaft side.

Set value	Rotation direction	Remarks
0	Take the CCW direction for a positive turn	When the forward instruction is given, from the motor shaft side, the motor rotation direction is CCW direction, that is, the motor rotates counterclockwise.
1	Take the CW direction as a positive turn	When the forward instruction, from the motor shaft side, the motor rotation direction is CW direction, that is, the motor rotates clockwise.



Subindex 04h	Name	Output pulse phase Direction of output pulse			Set effective	Shutdown Settings power up again	Data structure	-	Data type	Uint16
	accessibility	RW	Can map	-	Related patterns	ALL	Data range	0-1	Factory Settings	0

Set the phase relationship between the output phase A pulse and the phase B pulse when the pulse output function is used and the rotation direction of the motor is unchanged.

Set Value	Output pulse phase	Remarks
0	A ahead of B	The A phase pulse is 90°A phase ahead of the B phase pulse in the encoder frequency division output pulse 
1	A lags B	The A phase pulse lags behind the B phase pulse 90°A phase in the encoder frequency division output pulse 

Subindex 06h	Name	Servo Enable OFF Stop mode selection Stop mode at servo drive disabled			Set effective	Downtime Settings take effect immediately	Data Structure	-	Data type	Uint16
	accessibility	RW	Can map	-	Related patterns	ALL	Data range	0 ~ 1	Factory Settings	0

When setting the servo enable OFF, the deceleration mode of the servo motor from rotation to stop and the motor state after stop.

Set Value	Shutdown mode
0	Free stop, keep free running state
1	Stop at zero speed and keep free running

The proper stopping mode should be set according to the mechanical state and operation requirements.

Subindex 08h	Name	Overrange stop method selection Stop mode at overtravel	Setting takes effect	Shutdown Settings take effect immediately	Data structure	-	Data type	Uint16
	accessibility	RW	Can map	-	Related patterns	ALL	Data range	0-2	Factory Settings	1

Set the deceleration mode of the servo motor from rotation to stop and the state of the motor after stop when the servo motor runs in excess.

Set Value	Shutdown mode
0	Free stop, keep free running state
1	Stop at zero speed and keep the position locked
2	Stop at zero speed and keep the position in free operation

When the servo motor drives the vertical shaft, in order to ensure safety, the motor shaft should be set in the position locked state (2002-08h=1) after the occurrence of overdrive. For a comparison of stopping modes, refer to "6.1.9 Servo Stop" on page 164.

Subindex 09h	Name	Fault NO.1 Shutdown mode selection Stop mode at fault 1	Set effective	The shutdown setting takes effect immediately	Data structure	-	Data type	Uint16
	accessibility	RW	Can map	-	Related patterns	ALL	Data range	0	Factory Settings	0

Set the deceleration mode of the servo motor from rotation to stop and the state of the motor after stop when the servo drive has Class 1 fault.

Set Value	Shutdown mode
0	Free stop, keep free running state

Subindex OAh	Name	Hold gate output ON to command receive delay Brake release command delay at servo drive enabled	Set effective	Run Settings take effect immediately	Data structure	-	Data type	Uint16
	Accessibility	RW	Can map	-	Related patterns	PP/PV/HM/	Data range	(Unit: ms)	Factory Settings	250

Set the delay time from holding gate output (BK)ON after the servo drive is powered on, the servo drive begins to receive input commands. The servo does not receive position/speed/torque instructions during 2002-0Ah time. Please refer to, check the "Timing diagram of holding brake when motor is stationary".

Subindex OBh	Name	Stop state, holding brake output OFF to motor no power delay Servo drive disable delay at brake apply command	Setting takes effect		Data structure	-	Data type	Uint16
	accessibility	RW	Can map	-	Related patterns		Data range	1 to 1000 (in ms)	Factory Settings	150

Set the delay time from holding gate output (BK)OFF when the motor is at rest and the motor enters the no power state. Please refer to

, view "Lock Timing Diagram when motor is stationary".

Subindexed Och	Name	Rotational state, the threshold of rotational speed when the lock Output is OFF Output speed limit of brake reference	Set effective		Data structure	-	Data type	Uint16
	Accessibility	RW	Can map	-	Related patterns		Data range	0 to 3000 (unit: rpm)	Factory Settings	30

Set the motor in rotation by setting the lock gate output (BK) to the motor speed threshold when OFF.

Subindex ODh	Name	Rotation state, servo enable OFF to lock output OFF delay Waiting time from servo disable signal to brake apply command		Set effective	Run Settings take effect immediately	Data structure	-	Data type	Uint16
	Accessibility	RW	Can map -	Related patterns	PP/PV/PT/ HM/CSP/ CSV/CST	Data range	1-1000(in ms)	Factory Settings	500

Set the motor speed threshold when the lock gate output (BK) is set to OFF while the motor is in rotation.

, view the "BK timing diagram when the motor is rotating".

Subindex 10h	Name	LED Warning Display Select Display of keypad warning		Set effective	The shutdown setting takes effect immediately	Data structure	-	Data types 0-1	Uint16
	accessibility	RW	Can map -	Related patterns	-	Data range		Factory Settings	0

Set whether the panel switches to fault display mode when a Type 3 warning occurs on the servo drive.

Set Value	Shutdown mode	Remarks
0	Output a warning message immediately	When a Category 3 warning occurs, the panel displays the warning code in real time.
1	Do not output warning messages	The panel displays only Category 1 and 2 faults and does not display Category 3 warnings. To see if a Category 3 warning has occurred in the last 10 times, select and view through parameters 200B-22h and 200B-23h.

Subindex 16h	Name	The minimum brake resistance allowed by the drive Allowed minimumbraking resistance Can map		Setting takes effect	-	Data structure	-	Data type	Uint16
	accessibility	RO	-	Correlation model	-	Data range	1-1000	Factory Settings	-

View the minimum brake resistance allowed for a certain model of drive, related only to the drive model.

Subindex 17h	Name	Power of built-inbraking resistor. Power of built-inbraking resistor		Set in effect	-	Data structure	-	Data type	Uint16
	accessibility	RO	Can map -	Related patterns	-	Data range	1-65535	Factory Settings	-

View the brake resistance power built into a certain model of drive, which cannot be changed and is only relevant to the drive model.

Subindex 18h	Name	Built-in Brake resistor Resistance value Rssin braking resistor		Setting takes effect	-	Data structure	-	Data type	Uint16
	Accessibility	RO	Can map -	Related patterns	-	Data range	1-1000.	Factory Settings	-

View the brake resistance value built into the drive of a certain model, which cannot be changed and is only related to the drive model.

When the maximum braking energy absorbed by the busbar capacitor is less than the calculated value of the maximum braking energy, the brake resistor is required.

When using the built-in brake resistor, connect the terminals "P" and "D" directly with short splice.

Servo drive number (2001-03h)=1 or 2 or 3 with no built-in brake resistance.

Subindex 19h	Name	Heat dissipation coefficient of resistance Resistor heat dissipation coefficient	Set effective	The shutdown setting takes effect immediately	Data structure	-	Data type	Uint16

Subindex 1Bh	Name	Power of externaldynamic resistor	Setting in effect	The shutdown setting takes effect immediately	Data structure	-	Data type	Uint16
	accessibility	RW	Can map	-	Related patterns	-	Data range	1 to 65535 (in W)	Factory Settings	40

resistors.

Please set

Recomme

Under norm

dissipation coefficient) does not exceed 30%; when forced air cooling, 2002-19h (resistance heat dissipation coefficient) is not more than 50%.

(2002-1Bh)

Subindex 1Ah	Name	Brake resistor Sets the braking resistor type	Setting takes effect	The shutdown setting takes effect immediately	Data structure	-	Data type	Uint16
	accessibility	RW	Can map	-	Related patterns	-	Data range	0-3	Factory Settings	0

Set the way the braking energy is absorbed and released.

Set value	The way the braking energy is absorbed and released	Remarks
0	Use a built-in brake resistor	Use when "Maximum braking Energy Calculated Value" > "Maximum braking energy that the capacitor can absorb" and "Braking Power Calculated value" < "Built-in braking resistance power".
1	Use an external brake resistor for natural cooling	Use when "Maximum braking Energy Calculated Value" > "Maximum braking energy absorbed by capacitor" and "braking power Calculated value" > "Built-in braking resistance power".
2	Use an external brake resistor and force air cooling	Use when "Maximum braking Energy Calculated Value" > "Maximum braking energy absorbed by capacitor" and "Braking power Calculated value" > "Built-in braking resistance power".
3	No brake resistance is used, it's all capacitor absorption	"Maximum braking energy calculated value" < "Maximum braking energy that the capacitor can absorb" is used.

braking_resistor

Resistance of external

-

Uint16

1Ch

1-1000

-

-

RW

50

2002-1Ch(

)

Er.920(

)

Er.410(

)

2002-1Ch (

)

2002-16h(

)

Er.922(

)

P

D

P

C

Subindex 20h	Name	System Parameter Initialization Parameter initialization			Set effective	Stop setting Effective immediately	Data structure	-	Data type	Uint16
	accessibility	RW	Can map	-	Related patterns	-	Data range	0-2	Factory Settings	0

Used to restore parameters to factory values or clear fault records.

2003h

index 2003h	Name	Terminal Input parameter Input Terminal Parameters			Set effective	-	Data structure	ARR	Data type	Uint16
	accessibility	-	Ability to map	YES	Correlation model	-	Data range	OD data range	Factory Settings	OD default

Set the terminal input parameters.

Subindex 00h	Name	Maximum subindex number Number of Entries			Set effective	-	Data structure	-	Data type	Uint8
	Accessibility	RO	Can map	NO	Correlation model	-	Data range	-	Factory Settings	36

According to the Settings, the panel can be automatically switched to monitor parameter display mode (200Bh group parameters), and 2002-21h is used to set in-group bias for 200Bh group parameters.

Set Values	200Bh group parameters	Remarks
0	200B-01h	The motor speed is not zero, and the panel displays 200B-01h(actual motor speed) setting. Panel displays
1	200B-02h	200B-02h(speed command) value.

When the non-existent 200Bh group parameter is set, the panel does not switch to the 200Bh group parameter display.

Subindex 01h	Name	Power on the valid DI function allocation 1 States of functions not allocated among FunIN 1-16 (HEX)	Set in effect	Run setting Power on again	Data structure	-	Data type	Uint16
	accessibility	RW	Can map	-	Related patterns	-	Data range	0 ~ 65535	Factory Settings	0

DI (FunIN.1 FunIN.16) (0000 FFFF) DI 2003-01h bit(n)=1 FunIN.(n+1)

2003-01h

Set value (hexadecimal)	Significance bit	Power on a valid DI function	Function Name	Decimal	Remarks
0000	There is no	0 (does not assign DI function)	There is no	0 This parameter is not recommended	
0002	bitl	2	ALM-RST(Fault and warning reset signal) Gain-SEL (GAIN switching signal) ZCLAMP(zero fixed function enable signal) P-OT(forbidding forward drive) N-OT(forbidding reverse drive)	2	
0004	bit2	3		4	
0800	bit11	12		2048	Not recommended
2000	bit13	14		8192	Not recommended
4000	bit14	15		16384	Not recommended
8000	bit15	16	P-CL (Positive external torque limit Enable)	32768	

2003-01h DI 2003h (DI) 2017h (DI)

DI DI ALM-RST( )

DI DI

Parameter values for 2003-01h do not set to values other than those in the table above.

The value of 2003-01h (the DI function that is valid for poweron) cannot be assigned to group 2003h (the DI function that needs to be assigned to hardware terminals) or group 2017h (the virtual DI function). Otherwise, the setting of 2003-01h is invalid. Whether the DI function that is repeatedly assigned is valid depends on group 2003h (D1 that needs to be assigned to hardware terminals) Function) or group 2017h (virtual DI function) decide.

It is not recommended to use the "Power on active DI function assignment" function along the change of active DI function, such as: "ALM-RST(Fault and Warning reset signal)".

You are not advised to use the "Power On Active DI Assignment" function for the DI function that requires "Power On Active DI Assignment".

Subindex 02h	Name	Power on the valid DI function assignment 2 States of functions not allocated among FunIN 17-32 (HEX)	Set effective	Run Settings Power on again	Data structure	-	Data type	Uint16
	accessibility	RW	Can map	-	Related patterns	-	Data range	0 ~ 65535	Factory Settings	0

Set the hexadecimal code (0000 to FFFF) corresponding to the DI function (FunIN.17 to FunIN.32). The DI function takes effect immediately after the control power is reconnected. 2003-02h is displayed as hexadecimal on the panel, and when converted to binary, bit(n)=1 indicates that the FunIN.(n+1) function is valid.

2003-02h is displayed as decimal in the debugging platform input field.

FunIN.17~ FunIN.32 Refer to "E.4 DIDO Function Definition" on page 572.
Please refer to the table below for parameter value Settings.

Set values (hexadecimal)	Significance bit	Power on a valid DI function	Function Name	Decimal	Remarks
0000	There is no	0 (does not assign DI function)	There is no	0	
0001	bito	17	N-CL (reverse external torque limit)	1	
0002	bit1	18	JOGCMD+ (positive dot)	2	Not recommended
0004	bit2	19	JOGCMD- (reverse dot)	4	Not recommended
0100	bit8	25	TOQDirSel (torque instruction direction setting)	256	
0200	bit9	26	SPDDirSel (Speed command direction setting)	512	
0400	bit10	27	POSDirSel (position instruction direction setting)	1024	
2000	bit13	30(Does not assign DI function)	There is no	8192	Not recommended
4000	bit14	31	HomeSwitch (origin switch)	16384	

Parameter values for 2003-02h do not set to values other than the above table.

The value of 2003-02h (valid DI function on power-on) cannot be the same as that of group 2003h (DI function that requires hardware terminals to be assigned) or group 2017h (virtual DI function).

Subindex 03h	Name	DI1 function selection DI1 Function selection		Set in effect	Run Settings Shutdown takes effect	Data structure	-	Data type	Uint16
	accessibility	RW	Can map	-	Related patterns	-	Data range	0-39	Factory Settings	14

DI1 DI DI

Set value	DI terminal function
0	Do not assign the DI function
2	ALM-RST(fault and warning reset)
3	Gain-sel (GAIN switching)
12	ZCLAMP(zero fixed Enable)
14	P-OT (forward overrange switch)
15	N-OT(Reverse overrange switch)
16	P-CL(positive external torque limit
17	N-CL(negative external torque limit)
18	JOGCMD+ (positive dot)
19	JOGCMD- (reverse dot)

Set value	DI terminal function
25	ToqDirSel (torque instruction direction setting)
26	SpdDirSel (Speed command direction setting)
27	PosDirSel (position instruction direction setting)
30	There is no
31	HomeSwitch(origin switch)
34	EmergencyStop (emergency shutdown)
35	ClrPosErr (clear position bias)
36	V_LmtSel (internal speed limit source)
38	TouchProbel(Probe 1)
39	TouchProbe2(Probe2)

2003-03h

DI Er.130(DI)

DI DI DI DI

DI1 DI6 DI 3ms

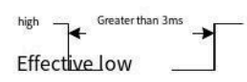
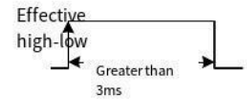
DI8 DI9 DI 0.25ms

DI (DI 3ms DI 0.25ms) DI8 1 DI9 2

Subindex 04h	Name	DI1 Terminal logic selection DI1 logic selection		Setting takes effect	Run Settings shutdown takes effect	Data structure	-	Data type	Uint16
	accessibility	RW	Can map	-	Related patterns	-	Data range	0 to 4	Factory Settings	0

DI1
DI
DI1

DI1 DI6 DI 3ms

Set value	DI terminal logic when the DI function is valid	Remarks
0	Low level	
1	High level	
2	Rising edge	
3	Falling edge	
4	Rising edge and falling edge	

Data type Uint16 subindex	Run Settings Name	DI2 terminal function Select			Set to take effect		Data structure	-			
Shutdown effective 05h		DI2 function selection									
	Accessibility RW		Can map	-	Related patterns	-	Data range	0-39	Factory Settings	15	
Subindex 06h	Name	DI2 Terminal logic selection DI2 logic selection			Setting takes effect	Run Settings shutdown takes effect	Data structure	-	Data type	Uint16	
	accessibility	RW	Can map	-	Related patterns	-	Data range	0 to 4	Factory Settings	0	
Subindex 07h	Name	DI3 Terminal function selection DI3 function selection			Setting takes effect	Run Settings shutdown takes effect	Data structure	-	Data type factory	Uint16	
	Accessibility	RW	Can map	-	Related patterns	-	Data range	0-39	Settings	0	
Subindex 08h	Name	DI3 Terminal logic selection DI3 logic selection			Set effectuation-related modes	Run Setting Stop takes effect	Data structure	-	Data type	Uint16	
	accessibility	RW	Can map	-		-	Data range	0 ~ 4	Factory Settings	0	
Subindex 09h	Name	DI4 Terminal function selection DI4 function selection			Setting takes effect	Run Settings shutdown takes effect	Data structure	-	Data type	Uint16	
	accessibility	RW	Can map	-	Related patterns	-	Data range	0-39	Factory Settings	0	
Subindex OAh	Names	DI4 Terminal logic selection DI4 logic selection			Setting takes effect	Run Settings shutdown takes effect	Data structure	-	Data type factory	Uint16	
	accessibility		Can map	-	Related patterns	-	Data range	0 ~ 4	set	0	
Subindex OBh	Name	RWDI5 Terminal function selection DI5 function selection			Set in effect	Run Settings shutdown takes effect	Data structure	-	Data type factory	Uint16	
	accessibility	RW	Can map	-	Related patterns	-	Data range	0-39	Settings	0	
Subindex OCh	Names	DI5 Terminal logic selection DI5 logic selection			Setting takes effect	Run Settings shutdown takes effect	Data structure	-	Data type factory	Uint16	
	Accessibility	RW	Can map	-	Related patterns	-	Data range		Settings	0	
Subindex ODh	Name	DI6 Terminal function selection DI6 function selection			Setting takes effect	Run Settings shutdown takes effect	Data structure	0-4 Data type factory Settings		Uint16	
	accessibility	RW	Can map	-	Related patterns	-	Data range	0-39		0	
Subindex OEh	Name	DI6 Terminal logic selection DI6 logic selectionRWDI8 Terminal function selection			Setting takes effect	Run Settings shutdown takes effect	Data structure	-	Data type factory	Uint16	
	Accessibility		Can it be mapped	-	Related patterns	-	Data range	0 ~ 4	set	0	
Subindex 11h	Name				Set effective	Run Settings shutdown takes effect	Data structure	-	Data type factory	Uint16	
	accessibility	RW	Can map	-	Related patterns	-	Data range	0-39	Settings	0	

Set the DI function corresponding to the hardware DI8 terminal.

Subindex 12h	Name	DI8 Terminal logical selection DI8 logic selection		Set effective	Run Settings Shutdown effect	Data structure	-	Data type	Uint16
	Accessibility	RW	Can map	-	Related patterns	-	Data range	0 to 4	Factory Settings	0

DI8 DI DI8 DI8 DI9 DI 0.25ms

Set value	DI terminal logic when the DI function is valid	Remarks
0	Low level	high low Greater than 0.25ms Effective
1	High level	Valid high low Greater than 0.25ms
2	Rising Edge	Effective high-low Greater than 0.25ms
3	Falling Edge	high Greater than 0.25ms Low effective
4	Rising and falling edges	Effective Valid High low Greater than 0.25ms

Subindex 13h	Name	DI9 Terminal function selection DI9 function selection			Setting takes effect	Run Settings shutdown takes effect	Data structure	-	Data type	Uint16
	accessibility	RW	Can map	-	Related patterns	-	Data range	0-39	Factory Settings	31
Set the DI function corresponding to the hardware DI9 terminal.										

Subindex 14h	Name	DI9 Terminal logic selection DI9 logic selection			Setting takes effect	Run Settings shutdown takes effect	Data structure	-	Data type	Uint16
	accessibility	RW	Can map	-	Related patterns	-	Data range	0 to 4	Factory Settings	0
Set to make the DI9 selected DI function valid, level logic of hardware DI9 terminals.										

Subindex 23h	Name	Power on the valid DI function allocation 3 States of functions not allocatedamong FunIN 33-48 (HEX)			Set in effect	Run setting Power on again	Data structure	-	Data type	Uint16
	accessibility	RW	Can map	-	Related patterns	-	Data range	0 ~ 65535	Factory Settings	0

(FunIN.33 FunIN.48)
DI
(0000 FFFF)
DI

2003-23h
bit(n)=1
FunIN.(n+1)

2003-23h

第 572 页上的“E.4 DIDO 功能定义”

FunIN.33 FunIN.48

Set value (hexadecimal)	Significance bit	Power on a valid DI function	Function Name	Decimal	Remarks
0000	There is no	0 (does not assign DI function)	There is no	0	
0002	bitl	34	EmergencyStop (emergency shutdown)	2	Not recommended
0004	bit2	35	ClrPosErr (clear position bias)	4	
0008	bit3	36	V_LmtSel (Internal Speed Limit Source selection)	8	It is not recommended to use it
0020	bit5	38	TouchProbel(Probe 1)	32	
0040	bit6	39	TouchProbe2(Probe2)	64	
0080	bit7	40		128	
0100	bit8	41		256	
0200	bit9	42		512	
0400	bit10	43		1024	
0800	bit11	44		2048	
1000	bit12	45		4096	
2000	bit13	46		8192	
4000	bit14	47		16384	
8000	bit15	48		32768	

2003-23h

2003-23h (DI) 2003h (DI) 2017h (DI) 2003-01h DI 2003h (DI) 2017h (DI)

DI
DI
ALM-RST(
)

DI
DI

Subindex 24h	Name	Power on the valid DI function assignment 4 States of functions not allocatedamong FunIN 49-64 (HEX)	Set in effect	Run setting re-energize	Data structure	-	Data type	Uint16
	Accessibility	RW	Can map	-	Related patterns	-	Data range	0 ~ 65535	Factory Settings	0

(FunIN.49 FunIN.64)
DI
(0000 FFFF)
DI

2003-24h
bit(n)=1
FunIN.(n+1)

2003-24h

第 572 页上的“E.4 DIDO 功能定义”

FunIN.49 FunIN.64

Set value (hexadecimal)	Significance bit	Power on a valid DI function	Decimal	Remarks
0000	There is no	0(does not assign DI function)	0	
0001	bito	49	1	
0002	bit1	50	2	
0004	bit2	51	4	
0008	bit3	52	8	
0010	bit4	53	16	
0020	bit5	54	32	
0040	bit6	55	64	
0080	bit7	56	128	
0100	bit8	57	256	
0200	bit9	58	512	
0400	bit10	59	1024	
0800	bit11	60	2048	
1000	bit12	61	4096	
2000	bit13	62	8192	
4000	bit14	63	16384	
8000	bit15	64	32768	

2003-24h

2003-24h (DI) 2003h (DI) 2017h (DI) 2003-01h DI 2003h (DI) 2017h (DI)

DI DI ALM-RST( ) DI DI

2004h

Index 2004h	Name	Terminal output parameter Output terminal Parameters	Set effective	-	Data structure	ARR	Data type	Uint16
	accessibility	-	Ability to map	YES	Correlation model	-	Data range	OD data range	Factory Settings	OD default

Subindex 00h	Name	Maximum subindex number Number of Entries	Set effective	-	Data structure	-	Data type	Uint8
	Accessibility	RO	Can map	NO	Correlation model	-	Data range	-	Factory Settings	56

subcord		DO1 Terminal Function Select DO1		Set effective	Run Settings	Data structure	-	Data type	Uint16
Name cited 01h		function selection			Shutdown effect				
	Accessibility	RW	Can map	-	Related patterns	-	Data range	0-20	Factory Settings	1

Set the DO function corresponding to the hardware DO1 terminal. Refer to "E.4 DIDO Function Definition" on page 572 for the DO function

Set value	DO function name
0	DO function not assigned
1	S-RDY: Servo ready
2	TGON: Motor rotation output
3	ZERO: Zero speed
4	V-CMP: Consistent speed
5	COIN: Positioning complete
7	C-LT: Torque limit
8	V-LT: Speed limited
9	BK: Hold the lock
10	WARN: Warnings
11	ALM: Fault
12	ALMO1: Output 3-digit alarm code
13	ALMO2: Outputs a 3-digit alarm code
14	ALMO3: Output 3-digit alarm code
18	ToqReach: Torque arrives
19	V-Arr: Speed to output
20	AngIntRdy; Initial Angle identification complete

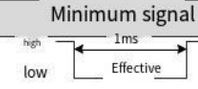
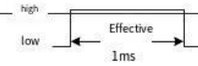
2004-01h

DO
DO
DO
VDO

Subindex 02h	Name	DO1 terminal logic level selection			Set in effect	Run Settings	Data structure	-	Data type	Uint16
		DO1 logic selection				Shutdown effect				
	accessibility	RW	Can map	-	Related patterns	-	Data range	0 ~ 1	Factory Settings	0

DO1
DO
DO1

DO1 DO3
DO
1ms
DO

Set value	DO1 terminal logic when the DO function is valid	Transistor status	Minimum signal width
0	Low level	On	
1	High level	Off	

DO 2004-17h(DO) DO

Subindex 03h	Name	DO2 Terminal function Select DO2 function selection			Setting takes effect	Run Settings shutdown takes effect	Data structure	-	Data type	Uint16
	accessibility	RW	Can map	-	Related patterns	-	Data range	0-20	Factory Settings	5

Subindex 04h	Name	DO2 terminal logic level selection DO2logic selection			Set effective	Run Settings shutdown takes effect	Data structure	-	Data type	Uint16
	accessibility	RW	Can map	-	Related patterns	-	Data range	0 ~ 1	Factory Settings	0

Subindex 05h	Name	DO3 Terminal function Select DO3 function selection			Setting takes effect	Run Settings shutdown takes effect	Data structure	-	Data type	Uint16
	accessibility	RW	Can map	-	Related patterns	-	Data range	0-20	Factory Settings	3

Subindex 06h	Name	DO3 terminal logic level selection DO3 logic selection		Set effective	Run Settings shutdown takes effect	Data structure	-	Data type	Uint16
	accessibility	RW	Can map	-	Related patterns	-	Data range	0 ~ 1	Factory Settings	0

DO (DO1-DO3) DO

2004-17h

2004-17h bit(n)=0 DO(n+1)

2004-17h bit(n)=1 DO(n+1) (2031-05h)

2004-17h (FunOUT.9 BK)

DO

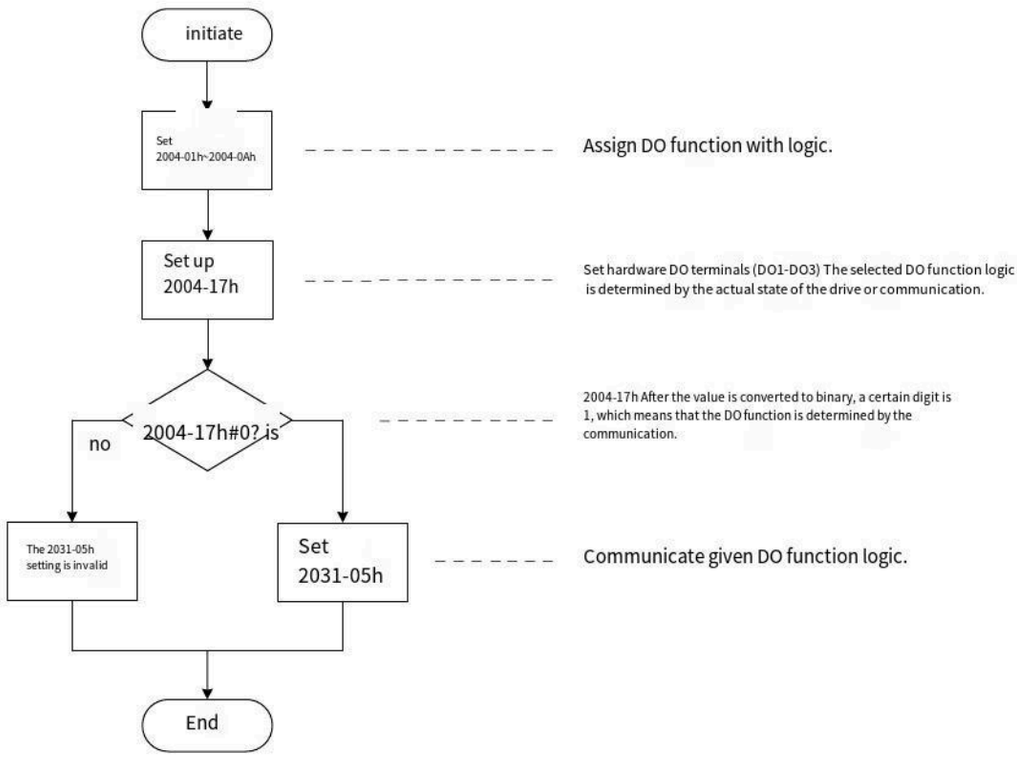
2031-05h 2031-05h bit(n)=1 DO(n+1) bit(n)=0 DO(n+1)

Subindex 17h	Name	DO source Select DO source		Set to take effect	Run Settings take effect immediately	Data structure	-	Data type factory	Uint16
	accessibility	RW	Can map	YES	Correlation model	-	Data range	0 to 7	Settings	0

(DO 9) DO

DO 200B-06h

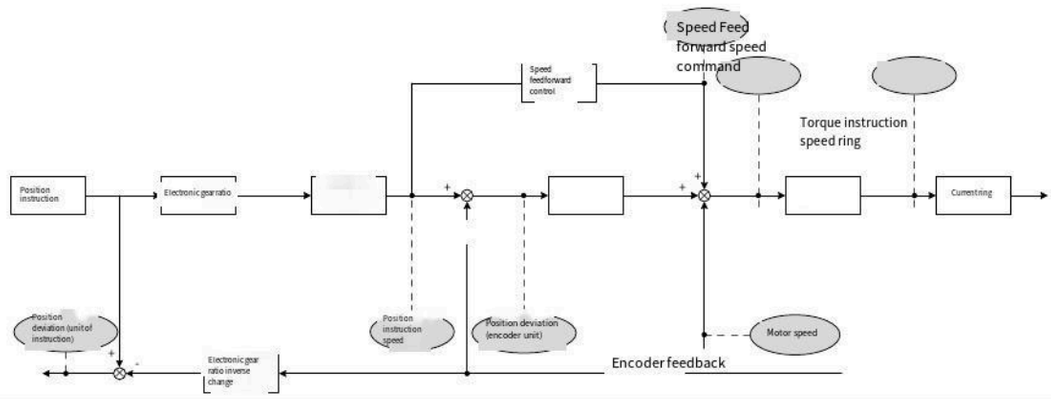
Set value (decimal)	DO logic				
	bit2	bit1	bito	Drive state determination	Communication (2031-05h) Settings
	DO3	DO2	DO1		
0	0	0	0	DO1-DO3	There is no
1	0	0	1	DO2-DO3	DO1
…	…	…	…	…	…
7	1	1	1	There is no	DO1-DO3



Subindex 33h	Name	AO1 signal selection AO1 signal selection		Set in effect	Run Settings With immediate effect	Data structure	-	Data type	Uint16
	Accessibility	RW	Can map -	Related patterns	-	Data range	0 ~ 7	Factory Settings	0

Set analog output Terminal 1(A01) output signal.

Set value	A01 signal	Remarks
0	Motor speed (1V/1000rpm)	When the actual motor speed is 1000rpm, the theoretical output voltage of the A01 terminal is 1V.
1	Speed command (1V/1000rpm)	Motor speed instructions refer to speed ring input instructions, including: Position loop output when position control; Speed setting instruction for speed control. When the speed instruction is 1000rpm, the theoretical output voltage of AO1 terminal is 1V.
2	Torque instructions (1V/1 times rated torque)	Motor torque instructions, including: Speed loop output for position or speed control; Torque control when torque set instruction. When the torque instruction is 1 times the rated torque of the motor, the theoretical output voltage of the AO1 terminal is 1V.
3	Position deviation (0.05V/1 instruction unit)	No position deviation through the electronic gear ratio. When the position deviation is 1 instruction unit, the theoretical output voltage of AO1 terminal is 0.05V.
4	Position deviation (0.05V/1 encoder unit)	Position deviation through electronic gear ratio. When the position deviation is 1 encoder unit, the theoretical output voltage of AO1 terminal is 0.05V.
5	Position command speed (1V/1000rpm)	In position control mode, the corresponding motor speed value of the position instruction output for each position loop cycle. When the position command speed is 1000rpm, the theoretical output voltage of AO1 terminal is 1V. Filter time constant for position instruction speed can be set by 200A-1Ch.
6	Positioning complete	Position complete (COIN) signal: Valid, AO1 output voltage is 5V; Invalid, AO1 output voltage is OV.
7	Speed Feed forward (1V/1000rpm)	In position mode, the output signal of the speed feedforward control corresponds to the partial source of the speed instruction. When the speed command output of the speed forward control is 1000rpm, the theoretical output voltage of the AO1 terminal is 1V.



index 34h	Name	AO1 Offset quantity voltage AO1 offset voltage		Set in effect	Run Settings take effect immediately	Data structure	-	Data type	Uint16
	accessibility	RW	Can map -	Related patterns	-	Data range	- 10000. ~ 10000 (in mV)	Factory Settings	5000

When the theoretical output voltage is set to OV, after bias, the actual output voltage value of AO1.

AO1
AO1
-
multiplying factor
Uint16

-
9999.

35h
RW
-
-
~
100

9999
0.01
1V ±3000rpm A O
AO1 1

2004-33h=0(AO1

x

y
0 5000mV
-3000×k+b = 0
3000×k+b = 5000
K = 0.83
b=2500
2004-34h=2500(mV)
2004-35 h = 0.83 (
)

Subindex 36h	Name	AO2 Signal selection AO2signal selection		Set to take effect	Run Settings take effect immediately	Data structure	-	Data type	Uint16
	accessibility	RW	Can map	-	Related patterns	-	Data range	0 ~ 7	Factory Settings	0

Subindex 37h	Name	AO2 offset voltage AO2 Offset Voltage		Set in effect	Run Settings take effect immediately	Data structure	-	Data type	Uint16
	Accessibility	RW	Can map	-	Related patterns	-	Data range	-10000 to 10000 (unit: mV)	Factory setting	5000

Subindex 38h	Names	AO2 multiplier AO2multiplying factor		Set in effect	Effective immediately	Data structure	-	Data type	Uint16
	accessibility	RW	Can map	-	Related patterns	-	Data range	-9999~9999 (unit: 0.01 times)	Factory setting	100

2005h

index	Name	Location control parameters Position Control Parameters			Setting in effect	-	Data structure	ARR	Data type	Uint16
2005h	accessibility	-	Ability to map	YES	Correlation model	-	Data range	OD data range	Factory Settings	OD default
Set the position control parameters.										

Subindex 00h	Name	Maximum subindex number Number of Entries			Set in effect	-	Data structure	-	Data type	Uint8
	accessibility	RO	Can map	NO	Correlation model	-	Data range	-	Factory Settings	42

Name	Clear action Select Clear Action	Setting takes effect	Shutdown Settings With immediate effect	Data structure	-	Data type	Uint16
Subindex 11h							
Accessibility	RW	Can map	-	Related patterns PP/ HM/CSP	data range	0 ~ 2	Factory Settings	0

4

Set the conditions to clear the position deviation.

Set value	Clear condition	Remarks
0	Servo enable OFF and clear position deviation in case of failure	Servo run Servo run Servo stop Clear
1	Servo enable OFF and clear position deviation pulse when fault occurs	Servo run Servo run Servo failure Clear
I	The servo is enabled OFF and the position deviation is cleared by the ClrPosErr signal from the DI input	1 DI terminal should be set for DI function 35 (FunIN.35: ClrPosErr, clear position deviation), The DI terminal is recommended to select the fast DI terminal, and the recommended logic is set to valid along changes. DI is valid DI is invalid DI invalid Clear (Rising edge is valid)
		DI works DI is invalid DI is invalid Clear (Falling edge works)

The absolute value of the position deviation (instruction unit) is greater than the position deviation excessive threshold 6065h (Following Error Window, instruction unit), Er.B00(excessive bit deviation) will occur.

6065h When the set value is 4294967295, the driver does not perform the position deviation detection.

Subindex 12h	Name	Encoder frequencydivision pulses. Encoder frequencydivision pulses	Setting in effect	Shutdown Settings power up again	Data structure	-	Data type	Uint1e
	accessibility	RW	Can map	-	Related patterns	-	Data range	0 to 32,767 (unit: p/r)	Factory setting	2500

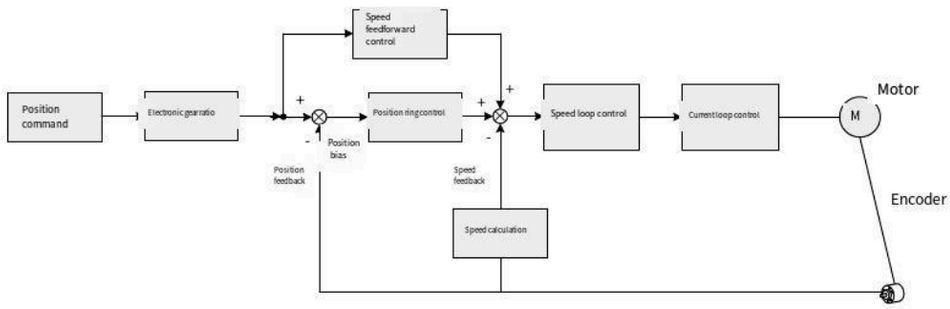
Set the number of output pulses of the pulse output terminal PAO or PBO for 1 turn of the motor rotation.

After 4 times the frequency, the pulse output resolution is:

Motor rotation 1 turn pulse output resolution =(2005-12h)×4

Subindex 14h	Name	Speed Feedforward Control selection Speed feedforwardcontrol selection			Setting takes effect	The shutdown setting takes effect immediately	Data structure	-	Data type	Uint16
	accessibility	RW	Can map	YES	Related modes PP/HM/CSP		data range	0 ~ 2	Factory Settings	1

Set the source of the speed loop feedforward signal. In position control mode, the speed feedforward control can improve the response speed of position command.



Set values	Speed feedforward source	Remarks
0	No speed feed forward	-
1	Internal speed feed forward	Use the speed information corresponding to the position instruction (encoder unit) as the speed loop feedforward source
	Use 60B1 as the speed feedforward	Under CSP, use 60B1h as the external speed feedforward signal source; The polarity of the speed feedforward signal 60B1h can be set through the bit6 of 607Eh.

2 The parameters of speed feedforward control include 2008-13h(speed feedforward filtering time constant) and 2008-14h(speed feedforward gain), please refer to "8.6.4 Feedforward gain" on page 382 for parameter Settings.

Subindex 20h	Name	Origin Reversion mode Homing mode			Setting takes effect	The shutdown setting takes effect immediately	Data structure		Data type factory	Uint16
	Accessibility	RW	Can map	-	Related patterns	CSP/PP	Data range	0-9	Settings	0

Set the default motor steering when the origin returns to zero, deceleration point, origin point.

Set value	Zero back to zero mode			Remarks
	Back to zero direction	Deceleration point	Origin point	
0	Forward	Origin switch	Origin switch	Forward/reverse: as defined in 2002-03h(rotation direction selection); Origin switch: DI function FunIN.31(HomeSwitch) Forward overrange switch: DI function FunIN.14(P-OT) Reverse overrange switch: DI function FunIN.15(N-OT)
1	Reverse forward	Origin switch	Origin switch	
2		Motor Z signal	Motor Z signal	
3	Reverse	Motor Z signal	Motor Z signal	
4	Forward direction	Origin switch	Motor Z signal	
5	Reverse	Origin switch	Motor Z signal	
6	Forward	Forward override switch Reverse override switch	Forward overdrive switch Reverse overrange switch	
7	Reverse forward			
8		Forward override switch Reverse override switch	Motor Z signal Motor Z signal	
9	Reverse			

Subindex 24h	name	Limit the time to find the origin Time of home searching			Setting takes effect	The running Settings take effect immediately	Data structure	-	Data type	Uint16
	Accessibility	RW	Can map	-	Related patterns	HM	Data range	0-65535. (Units: 10ms)	Factory Settings	50000

Set the maximum search origin time.

2005-24h If the setting is too small or the origin is not found within the 2005-24h limit time, the drive will have a warning Er.601(Return to Origin Timeout failure).

Subindex	Name	Pulse output source selection	Set in effect	Stop setting	Data structure	-	Data type	Uint16
27h		Servo pulse output source		re-energize				
	Accessibility	RW	Can map	-	Related patterns	-	Data range	0-2	Factory Settings	0

Set the output source of the pulse output port.

Set value	Output source	Remarks
0	Encoder divider output	When the motor is rotating, the encoder feedback signal is output after frequency division according to the set value of 2005-12h. When the upper computer is used as a closed-loop feedback, it is recommended to use the encoder frequency division output
1	Pulse command synchronous output	When the position instruction comes from the pulse instruction, the input pulse instruction will be synchronized output. When multi-axis servo pulse synchronous tracking, it is recommended to use pulse command synchronous output mode.
2	Use the full closed loop function and use the internal encoder for frequency division output	The pulse output port has no output, at this time you can use the full closed-loop function, and use the internal encoder for frequency division output.

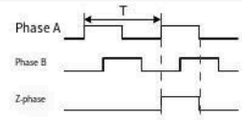
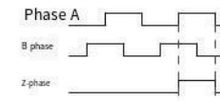
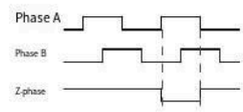
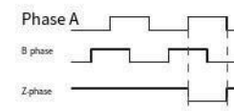
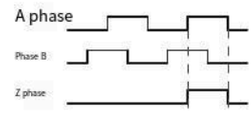
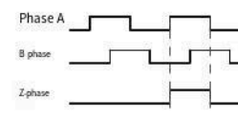
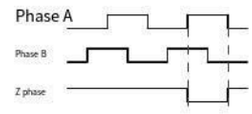
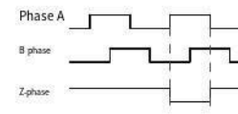
Pulse output hardware terminals:

Signal name	Output form	Output port	Maximum pulse frequency
A Trust signal	Differential output	PAO+、PAO	1Mpps
B trust number	Differential output	PBO+、PBO	1Mpps
z-trust	Differential output	PZO+、PZO	1Mpps
	Open collector output	PZ-OUT, GND	100kpps

The signal width of the A/B phase pulse is determined by the motor speed, and the signal width of the Z phase pulse is half the width of the A/B phase pulse signal. The Z signal output polarity is set by 2005-2Ah(Z Pulse Output Polarity Selection).

Subindex	Name	Select the Output polarity of Z pulse	Setting takes effect	Shutdown Settings power up again	Data structure	-	Data type	Uint16
2Ah								
	accessibility	RW	Can map	-	Related patterns	-	Data range	0 ~ 1	Factory Settings	1

SeSet the output level of the pulse output terminal Z when the pulse is active.

2002-04h (output pulse phase)	2005-2Ah (Z-pulse output polarity)	Forward turn, pulse output schematic	Inversion, pulse output schematic
0	0	 Phase A exceeds the former phase B by 90°	 Phase B exceeds prior phase A by 90°
	1	 Phase A exceeds the former phase B by 90°	 Phase B exceeds prior phase A by 90°
1	0	 The B phase exceeds the former A phase by 90°	 Phase A exceeds pre-phase B by 90°
	1	 The B phase exceeds the former A phase by 90°	 Phase A exceeds prior phase B by 90°

Z signal frequency division output accuracy requirements of higher use occasions, it is recommended to use Z signal output effective change edge:

Set value	Z-pulse output polarity selection	
0	Positive polarity (high level when Z-pulse is active)	The effective change edge is the falling edge
1	Negative polarity (low level when Z-pulse is active)	The effective change edge is the rising edge

Subindex 2Dh	Name	Absolute encode multi-turns offset			Set effective	Effective immediately	Data structure	-	Data type	Uint16	
	accessibility	RW	Can map	-	Related patterns	ALL	Data range	0-65535.	Factory Settings	0	

Subindex 2Fh	Name	Absolute position Linear Mode position offset ofabsolute encode(Low)			Set in effect	The shutdown setting takes effect immediately	Data structure	-	Data type	int32	
	Accessibility	RW	Can map	-	Related patterns	ALL	Data range	-231-(231-1) (encoder unit)	Factory setting	0	

Subindex 31h	Name	Absolute Position Linear Mode position bias is 32 bits higher Absolute position offset of absolute encode(High)			Set in effect	The shutdown setting takes effect immediately	Data structure	-	Data type	int32	
	accessibility	RW	Can map	-	Related patterns	ALL	Data range	-231-(231-1) (encoder unit)	Factory setting	0	

The absolute value system operates in linear mode (2002-02=1), setting the bias of the absolute position of the machine (encoder units) relative to the absolute position of the motor (encoder units). Absolute position Linear mode position bias = absolute motor position - absolute mechanical position

Note: Absolute position linear mode position bias 2005-2Fh and 2005-31h default to 0, enable the driver origin restore function, after the end of the origin restore the driver automatically calculates the encoder absolute position deviation from the mechanical absolute position, assign the value to 2005-2Fh and 2005-31h and save in EEPROM.

Subindex 33h	Name	Absolute Position Rotation mode Mechanical Gear ratio (molecular) Mechanical Gear rationumerator of absoluteencode mode 2			Setting in effect	The shutdown setting takes effect immediately	Data structure	-	Data type	Uint16	
	accessibility	RW	Can map	-	Related patterns	ALL	Data range	1-65535	Factory Settings	1	

Subindex 34h	Name	Absolute Position Rotary mode Mechanical gear ratio (denominator) Mechanical Gear ratio denominator of absolute encode mode 2			Set effective	The shutdown setting takes effect immediately	Data structure	-	Data type	Uint16	
	accessibility	RW	Can map	-	Related patterns	ALL	Data range	1-65535.	Factory Settings	1	

When the system works in rotation mode (2002-02=2), set the ratio of the number of feedback pulses corresponding to one rotation of the load (encoder unit) to the absolute position feedback of the motor encoder (encoder unit). Assuming the encoder resolution RE, the number of encoder pulses corresponding to one load rotation is RM, and when both 2005-35h or 2005-37h are 0:

RM=RE*2005-33h/2005-34h

Note: The upper limit of the absolute position of the machine inside the drive is preferred to use 2005-35h and 2005-37h, when the 2005-35h and 2005-37h are 0, then use the mechanical gear ratio 2005-33h and 2005-34h.

Subindex 35h	Name	absolute position rotation mode Load rotation value of mechanical absolute | setting takes effect The number of pulses in a circle is lower than 32 bits Max position(inc) of absolute encode mode 2(Low)				Shutdown Settings take effect immediately	Data structure	-	Data Types	Uint32	
	Accessibility	RW	Can map	-	Related patterns	ALL	Data range	0-(232-1) (encoder unit)	Factory setting	0	

Subindex 37h	name	Absolute Position rotation mode load rotation one turn the number of pulses is 32 bits higher Max value of mechanical absolute position(inc) of absolute encode mode 2(High)			Set effective	The shutdown setting takes effect immediately	Data structure	-	Data type	Uint32
	Accessibility	RW	Can map	-	Related patterns	ALL	Data range (unit: encoder unit)	0 ~ 127	Factory Settings	0

Absolute value When the system works in rotation mode (2002-02-2), set the number of feedback pulses corresponding to one rotation of the load (encoder unit). Assuming that the number of encoder pulses corresponding to one turn of load rotation is RM, when 2005-35h or 2005-37h is not equal to 0:

$$PM = 2005\text{-}37h \times 232 + 2005\text{-}35h$$

◆ Note: The upper limit of the absolute position of the machine inside the drive is preferred to use 2005-35h and 2005-37h, when the 2005-35h and 2005-37h are 0, then use the mechanical gear ratio 2005-33h and 2005-34h.

Subindex GEMEH	Name	Position Reach Threshold Unit Select Position window Unit Set			Setting takes effect	The shutdown setting takes effect immediately	Data structure	-	Data type	Uint16
	accessibility	RW	Can map	-	Related patterns	PP/ HM/CSP	Data range	0 ~ 1	Factory Settings	1

Set the unit where the position reaches the threshold 6067h.

Value	Description
0	Encoder unit
1	Unit of instruction

2006h

index	Name	Speed control Parameters Speed ControlParameters			Setting takes effect	-	Data structure	ARR	Data type	Uint16
2006h	accessibility	-	Ability to map	YES	Correlation model	-	Data range	OD data range	Factory Settings	OD default

Set the speed control parameters.

Subindex 00h	Name	Maximum subindex Number Number of Entries			Setting takes effect	-	Data structure	ARR	Data type	Uint8
	accessibility	RO	Can map	NO	Correlation model	-	Data range	-	Factory Settings	16

Subindex 05h	Name	Click speed setpoint Jog speed setting value			Set effective	Run Settings take effect immediately	Data structure	-	Data type	Uint16
	Accessibility	RW	Can map	-	Related patterns	-	Data range	0 to 6000(unit: rpm)	Factory Settings	100

Use the set point dynamic running speed instruction value when using the point-and-click function.

Torque feedforward
-
Uint16

0Ch
control selection
PP/PV/HM/
RW
YES
0 ~ 2
1

	时钟同步	RW	能否映射	YES	相关模式	CSP/CSV	数据范围	0~2	出厂设定	1

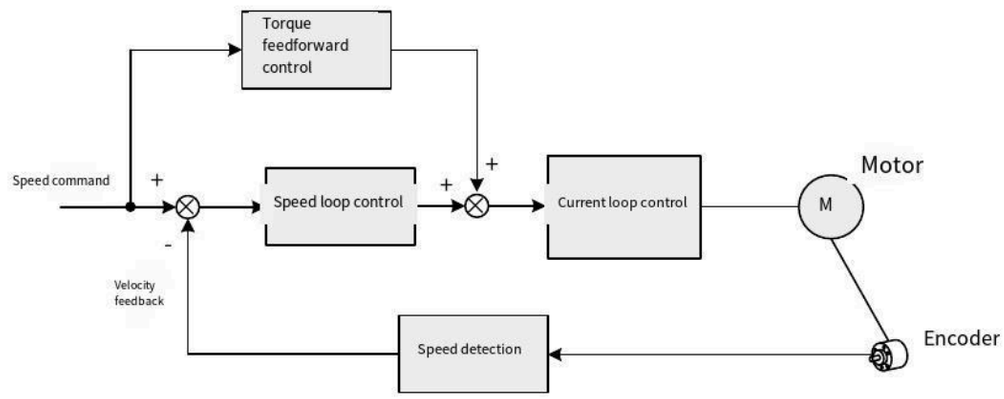
Set whether to enable the internal torque feedforward function in non-torque control mode.

Using the torque feedforward function can improve the torque command response speed and reduce the position deviation during fixed acceleration and deceleration.

Set Point	Torque feedforward control selection	Remarks
0	There is no	-
1	Internal torque feedforward	Source of torque feedforward signal is speed instruction: In position mode, the output from the position controller In speed mode, the command from the user gives the speed
2	Use 60B2 as an external torque feedforward	In cyclic synchronous position mode and cyclic synchronous speed mode, 60B2h is used as the source of external torque feedforward signal; The polarity of the torque feedforward signal can be set by bit5 of 607Eh. Note: When using 60B2h as the torque feedforward signal, the effect can be adjusted by adjusting the torque feedforward gain 2008-16h and the torque feedforward filter 2008-15h.

The torque feedforward function parameters include the torque feedforward gain (2008-15h) and the torque feedforward filter time constant (2008-16h). Please refer to "8.6.4 Feedforward Gain" on page 382 for setting.

In non-torque control mode, the torque feedforward control block diagram is shown as follows:



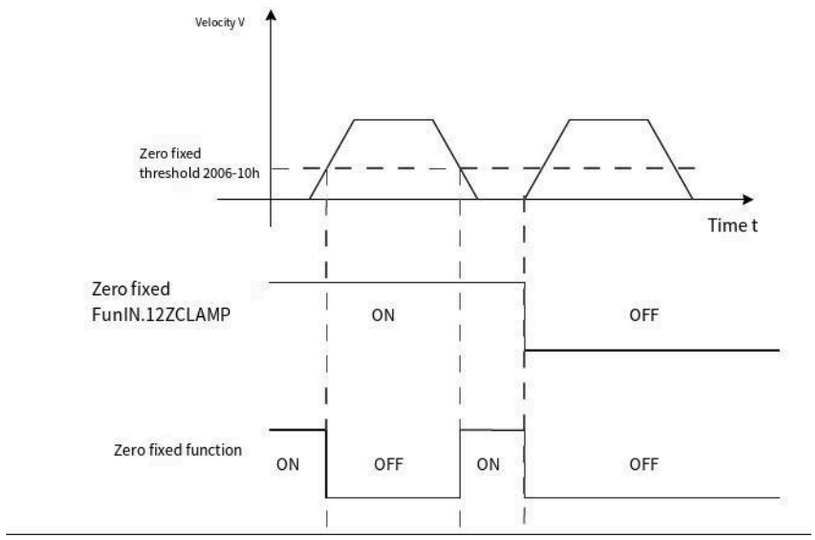
Speed limit for zero clamp
-
Uint16

10h
0 ~ 6000
RW
-
PV/CSV
rpm
10
DI
FunIN.12 (ZCLAMP)
2006-10h

Plus
or
min
us
1

2006-10h

DI
FunIN.12 (ZCLAMP)



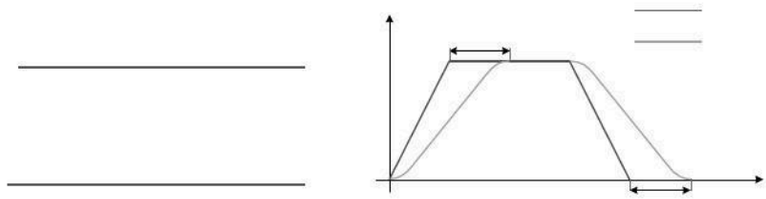
2007h

Index	Name	Torque control parameters			Set in effect	-	Data structure	ARR	Data type	Uint16
2007h	accessibility	-	Ability to map	YES	Correlation model	-	Data range	OD data range	Factory Settings	OD default:
Set the torque control parameters										

Subindex 00h	Name	Maximum subindex Number Number of Entries			Setting takes effect	-	Data structure	-	Data type Uint8	
	Accessibility	RO	Can map	NO	Correlation model	-	Data range	-	Factory Settings	41

Subindex 06h	Name	Torque instruction filter time constant Torque reference filter time			Set in effect	Run Settings take effect immediately	Data structure	-	Data type	Uint16
	Accessibility	RW	Can map	-	Related patterns	ALL	Data range	0-3000. (Units: 0.01 ms)	Factory Settings	79

2 1 Subindex 07h	name	Second torque instruction filter time constant Thes second torque reference filter time			Set effective	Run Settings take effect immediately	Data structure	-	Data type	Uint16
	Accessibility	RW	Can map	-	Related patterns	ALL	Data range	0-3000 (units: 0.01 ms)	Factory Settings	79



In position or speed control mode, use the gain switching function, when certain conditions are met, you can switch to filter 2, please refer to "8.6.2 Gain switching" on page 377 for gain switching Settings.

Index 08h	Name	Torque Limit Source Torque Limit sourse			Set effective	Run Settings take effect immediately	Data structure	-	Data type factory set	Uint16
	accessibility	RW	Can map	-	Related patterns	ALL	Data range	0 ~ 4		2

Set the torque limit source, refer to "Chapter 6 Control Mode" on page 143 for details.

Set the Limit	Torque limit source
0	Plus or minus internal torque limits
1	Positive and negative external torque limits (using P-CL, N-CL, please refer to "E.4 DIDO Function Definition" FUNin16, FUNin17 on page 572 for details)
2	ETherCAT PLus-minus external torque limits: Positive external torque limit: min{6072h, 60E0h} Negative external torque limit: min{6072h, 60E1h}
3	Torque limit with minimum values of positive and negative external torque and ETherCAT positive and negative external torque limit (using P-CL, N-CL) Positive torque limits: P-CL invalid: min{6072h,60E0h] P-CL effective: min{2007-0Ch, 6072h, 60E0h} Negative torque limit: N-CL invalid: min{6072h, 60E1h} N-CL valid: min{2007-0Dh, 6072h, 60E1h}
4	Switching between plus-negative internal torque and ETherCAT plus-negative external torque limits (using P-CL, N-CL) Positive torque limits: P-CL invalid: 2007-0Ah P-CL works: min{6072h, 60E0h} Negative torque limit: N-CL invalid: 2007-0Bh N-CL valid: min{6072h, 60E1h}

Note: Torque limiting function is effective for position, speed, torque.

Subindex OAh	name	Positive internal torque limit Internal forward torque limit			Set in effect	Run Settings take effect immediately	Data structure	-	Data type	Uint16
	Accessibility	RW	Can map	-	Related patterns	ALL	Data range	0-4000(unit: 0.1%)	Factory Settings	3500

Subindex OBh	Name	Negative internal torque limit Internal reverse torque limit			Set in effect	Run Settings take effect immediately	Data structure	-	Data type	Uint16
	accessibility	RW	Can map	-	Related patterns	ALL	Data range	0-4000(unit: 0.1%)	Factory Settings	3500

2007-08h=0 4 100.0 1 1 2007-0Ah, 2007-0Bh

◆ Note 2: If the set value exceeds the maximum torque of the servo motor and drive used, the actual torque will be limited to the maximum torque of the servo motor and drive.

◆ Note 3: Please refer to "Chapter 6 Control Mode" on page 143 for the final torque limit value.

Subindexed OCh	Name	Positive External forward torque limit			Set in effect	Run Settings take effect immediately	Data structure	-	Data type	Uint16
	Accessibility	RW	Can map	-	Related patterns	0~4000 ALL	Data range	(Unit: 0.1%)	Factory Settings	3500

Subindex ODh	Name	Negative External reverse torque limit			Set in effect	Run Settings take effect immediately	Data structure	-	Data type	Uint16
	Accessibility	RW	Can map	-	Related patterns	0-4000 ALL	Data range	(Unit: 0.1%)	Factory Settings	3500

Set the value of plus or minus external torque limit when 2007-08h=1 or 3. 100.0% corresponds to 1 times the rated motor torque. Refer to "Chapter 6 Control Mode" on page 143 for the final torque limit value.

Subindex 10h	Name	Emergency stop torque			Settings in effect	The shutdown setting takes effect immediately	Data structure	-	Data type	Uint16
	Accessibility	RW	Can map	-	Related patterns	-	Data range	0-4000(unit: 0.1%)	Factory Settings	1000

Subindex 12h	Name	Speed limit source Select Speed Limit Source			Setting takes effect	Run Settings take effect immediately	Data structure	-	Data type	Uint16
	accessibility	RW	Can map	-	Related patterns	PT/CST	Data range	0-2	Factory Settings	0

Set the source of the speed limit in torque control mode.

After setting the speed limit, the actual motor speed will be limited to the speed limit value. After the speed limit is reached, the motor runs at a constant speed at the speed limit.

Value		Description
0	Internal speed limits	RPM limit determined by 2007-14h and 2007-15h
1	EtherCAT external speed limits	Forward speed limit: min{607Fh, 2007-14h} Reverse speed limit: min{607Fh, 2007-15h}DI(FunIN.36) Invalid: 2007-14h as forward and reverse speed limit DI(FunIN.36) Valid: 2007-15h as forward and reverse speed limit
2	Select 2007-14h/200715h as the internal speed limit via FunIN.36	

◆ Note:

◆ For speed limits in torque mode, see "6.9 Profile Torque Mode (pt) "on page 191. Torque Control forward speed Limit value/Torque Control Speed limit

Subindex 14h	name	Torque control forward speed Limit value/Torque Control speed Limit value 1 Forward speed limit/Speed limit 1 in torque control			Setting in effect	Run Settings take effect immediately	Data structure	-	Data type	Uint16
	accessibility	RW	Can map	-	Related patterns	PT/CST	Data range	0-6000(in rpm)	Factory Settings	3000

Subindex 15h	name	Torque control Negative speed Limit value/Torque Control Speed Limit value 2 Reverse speed limit/Speed limit 2 in torque control			Setting in effect	Run Settings take effect immediately	Data structure	-	Data type	Uint16
	Accessibility	RW	Can map	-	Related patterns	PT/CST	Data range	0-6000. (in rpm)	Factory Settings	3000

Set the speed limit number for torque mode to a given value. See Chapter 6 for details.

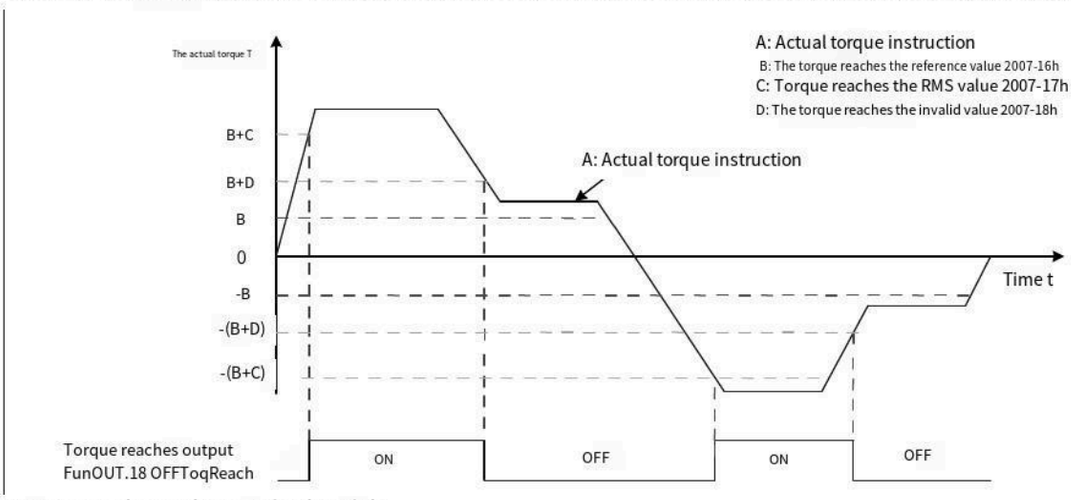
DO

Subindex 16h	|A|<B+D Name	Torque reaches the reference value Base value for torque reached			Setting takes effect	Run Settings take effect immediately	Data structure	-	Data type	Uint16
	accessibility	RW	Can map	-	Related patterns	PT/CST	Data range	0-3000(unit: 0.1%)	Factory Settings	0

Subindex 17h	Name	Torque reaches a valid Threshold of torquereached valid			Setting takes effect	Run Settings take effect immediately	Data structure 0-3000(unit: 0.1%)	-	Data type	Uint16
	Accessibility	RW	Can map	-	Related patterns	PT/CST	Data range		Factory Settings	200

Subindex 18h	Names	Torque reaches the Threshold of torquereached invalid			Setting takes effect	Run Settings take effect immediately	Data structure 0~3000(unit: 0.1%)	-	Data type	Uint16
	Accessibility	RW	Can map	-	Related patterns	PT/CST	Data range		Factory Settings	100

The torque reach function (FunOUT.18: ToqReach, torque reach) is used to judge whether the actual torque instruction reaches the effective value interval, and when the interval is met, the driver can output the corresponding DO signal for the host computer to use.



Actual torque instructions (can be viewed via 200B-03h) : A; Torque reaches the reference value 2007-16h: B; Torque reaches RMS value 2007-17h: C;

Torque reaches invalid value 2007-18h: D;

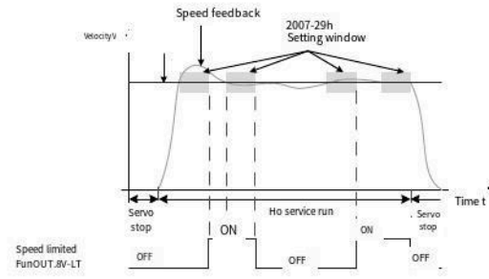
Where C and D are offset on the basis of B.

Therefore, when the torque arrival DO signal changes from invalid to effective, the actual torque instruction must meet :|A| > B+C; otherwise, the torque arrival DO signal remains invalid.

Subindex 29h	Name	Speed limited window in torque mode Detection time of speed limit exceeded	Set effective	Run Settings take effect immediately	Data structure 5~300 (unit: 0.1ms)	Data Type	Uint16
	accessibility	RW	Can map -	Related patterns	PT/CST	Data range	Factory Settings	10

In torque mode, The absolute actual speed of the servo motor exceeds the speed limit value (for the speed limit setting in torque mode, please refer to "6.9 Profile Torque Mode (pt)" on page 191), and the time reaches 2007-29h When, it is considered that the actual speed of the servo motor is limited, and the servo drive can output the speed limited (FunOUT.8:V-LT) signal at this time. On the contrary, if any condition is not met, the speed limited signal is invalid.

The judgment of the speed limited signal (FunOUT.8: V-LT) is only carried out in the torque mode, servo operation state.



◀ Attention:

◀ In the figure above, ON means that the speed limited DO signal is valid and OFF means that the speed limited DO signal is not valid.

2008h

2008-02h
512.00

Index 2008h	Names	Gain-type parameter Gain Parameters	Set in effect 0	-	Data structure	ARR	Data type	UINTER16
	accessibility	-	Ability to map	YES	Correlation model	-	Data range	OD data range	Factory Settings	OD default

Set the gain class parameters.

Subindex 00h	Name	Maximum subindex Number Number of Entries	Setting takes effect	-	Data structure	-	Data type	Uint8
	accessibility	RO	Can map	NO	Correlation model	-	Data range	-	Factory Settings	25

Subindex 01h	Names	Speed loop gain Speed loop gain	Setting in effect	Run the Settings immediately	Data structure	-	Data type	Uint16
	Accessibility	RW	Can map	-	Related patterns	PP/PV/HM/CSP/CSV	Data range	1-20000(unit: 0.1Hz)	Factory setting	250

Set the proportional gain of the speed loop.

This parameter determines the response of the speed ring, the larger the speed ring the faster the response, but setting too large may cause vibration and needs attention. In position mode, if you want to increase the position loop gain, increase the speed loop gain at the same time.

Subindex 02h	Name	Speed loop integraltime constant Speed loop integraltime Constant	Setting in effect	Run Settings take effect immediately	Data structure 15~ Data range 51200 (units: 0.01 ms)	-	Data type	Uint16
	Accessibility Sets the integral time constant of the speed loop.	RW	Can map	-	Related patterns	PP/PV/HM/CSP/CSV			Factory setting	3183

Position loop gain
-
Uint16

03h
0 ~ 20000
RW
-
PP/HM/CSP
0.1 Hz
400

2008-01h, 2008-02h, 2008-03h, and 2007-07h (torque instruction filtering time constant) are called first gains.

Subindex 04h	Name	2nd speed loop gain The second speed loop gain			Set effective	Run Settings take effect immediately		-	Data structure	Data type	Uint16
	Accessibility	RW	Can map	-	Related patterns	PS	Data range	1~20000 (unit: 0.1Hz)		Factory Settings	400

Subindex 05h	Name	Second velocity loop integral time constant The second speed loop integral time constant			Set effective	Run Settings take effect immediately	Data Structure	51200(unit: 1s)	-	Data type	Uint16
	Accessibility	RW	Can map	-	Related patterns	PP/PV/M/ CSP/CSV	Data range	15 -		Factory Settings	2000

Subindex 06h	Name	The second position loop gain. The second position loop gain			Setting in effect	Run Settings take effect immediately		-	Data structure	Data type Factory set	Uint16
	Accessibility	RW	Can map	-	Related patterns	PP/HM/CSP	Data range	0-20000(unit: 0.1Hz)			640

Set the second gain of the position loop, speed loop. 2008-04h, 2008-05h, 2008-06h, and 2007-07h (the second torque instruction filter time constant) are called the second gain. Refer to "8.6.2 Gain Switching" on page 377 for information related to gain switching.

Subindex 09h	Name	The 2nd gain mode is set Second gain mode setting			Set effective	Run Settings take effect immediately PP/PV/HM/CSP/CSV	Data structure	-		Data type	Uint16
	Accessibility	RW	Can map	-	Related patterns		Data range	0 ~ 1		Factory Settings	1

0	The first gain is fixed, and the control of the speed loop is switched P/PI using the DI function 3(FunIN.3: GAIN_SEL, gain switching). Invalid GAIN_SEL signal - PI control GAIN_SEL signal is valid -- P control
1	The first gain (2008-01h~2008-03h, 2007-06h) and the second gain (2008-04h~200806h, 2007-07h) are switched effectively, and the switching condition is 2008-0Ah.

Subindex OAh	Names	The gain switching condition is selected Gain switchover condition			Set in effect	Run Settings Run the Settings immediately PP/PV/HM/CSP/CSV	Data structure	-		Data type	Uint16
	accessibility	RW	Can map	-	Related patterns		Data range	0 ~ 10		Factory Settings	0

Set value	Gain switching condition	Remarks
0	First gain fixed	Fixed for the first gain.
1	Use an external DI switch	Use the Gain-SEL signal for GAIN switching: GAIN_SEL signal invalid One first gain (2008-01h~2008-03h, 2007-06h)GAIN_SEL signal valid one second gain (2008-04h~2008-06h, 2007-07h) Fixed as the first GAIN when the GAIN-SEL signal cannot be assigned to the DI terminal.
2	Torque command large	In the last first gain, when the absolute value of the torque instruction exceeds (class + delay)[%], switch to the second gain; In the last second gain, when the absolute value of the torque instruction is less than (grade-delay) [%] of the state continues during the period of delay time (2008-0Bh), return to the first gain.
3	Speed command large	On the last first gain, when the absolute value of the speed instruction exceeds (level + delay)[rpm], switch to the second gain. At the last second gain, the state where the absolute value of the speed instruction is lower than (rank + delay)[rpm] is sustained for the duration of the delay time (2008-0Bh), returns to the first gain.
4	The speed command has a high rate of change	Valid only in non-speed control mode: In the last first gain, when the absolute value of the rate of change of the speed instruction exceeds (class + delay) [10rpm/s], switch to the second gain. Return to the first gain when the absolute rate of change of the speed instruction at the last second gain is lower than (rank + delay)[10rpm/s] for the duration of the delay time (2008-0Bh). Speed control mode, fixed as the first gain.
5	Speed command high low speed threshold	In the last first gain, when the absolute value of the speed instruction exceeds (rank - delay)[rpm], it starts to switch to the second gain, the gain changes gradually, and when the absolute value of the speed instruction reaches (rank + delay)[rpm], the gain completely becomes the second gain. At the last second gain, when the absolute value of the speed instruction is lower than (grade + delay)[rpm], it begins to return to the first gain, the gain changes gradually, and when the absolute value of the speed instruction reaches (grade - delay)[rpm], the gain completely returns to the first gain.
6	Large position deviation	Effective only in position control mode, full closed-loop function: Switch to the second gain when the absolute value of the position deviation exceeds (class + delay)[encoder unit] at the last first gain. Return to the first gain when the absolute value of the position deviation at the last second gain is lower than that of (rank + delay) [encoder unit] for the duration of the delay time (2008-0Bh). Position control mode, outside the full closed loop function, fixed as the first gain.
7	Have location instructions	On the last first gain, if the position instruction is not 0, switch to the second gain. Valid only in Position Control mode, full Closed loop function: Return to first gain if the state of position instruction 0 at the last second gain is sustained during the period of delay time (2008-0Bh). Position control mode, full closed loop function, fixed as the first gain.
8	Positioning complete	Only valid in position control mode, full closed loop function: On the last first gain, if positioning is not complete, switch to the second gain. On the last second gain, return to the first gain if the positioning incomplete state lasted for the duration of the delay time (2008-0Bh). Position control mode, outside of full closed loop function, fixed as first gain.
9	Large actual speed	Only valid in position control mode, full closed loop function: Switch to the second gain when the absolute value of the actual speed exceeds (class + delay)[rpm] at the last first gain. In the last second gain, the state where the absolute value of the actual velocity is less than (grade-delay)[rpm] is sustained over the period of the delay time (2008-0Bh), returns to the first gain. The first gain is fixed outside the position control mode and the full closed loop function.
10	Have position command + actual speed	Only valid in position control mode, full closed loop function: On the last first gain, switch to the second gain if the position instruction is not 0. At the last second gain, the state of position instruction 0 persists for the duration of the delay time (2008-0Bh) and is the second gain; When the position instruction is 0 and the time of 2008-0Bh is up, if the absolute value of the actual velocity is less than (grade)[rpm], the velocity integral time constant is fixed at 2008-05h (the second velocity loop integral time constant), and the rest returns to the first gain; If the absolute value of the actual velocity is less than (grade-delay)[rpm], the velocity integral is also returned to 2008-02h (velocity loop integral time constant). The first gain is fixed except the position control mode and the full closed-loop function.

Subindex OBh	Name	Gain switching delay time Gain switchover delay			Set effective	Run Settings take effect immediately PP/PV/HM/CSP/CSV	Data structure	-	Data type	Uint16
	accessibility	RW	Can map	-	Related patterns		Data range	0-10000(unit: 0.1ms)	Factory Settings	50

Set the return from the second gain to the first gain when the switching condition is met for how long it needs to last.

Subindex OCh	Names	Gain switchover level. Gain Switchover Level			Setting takes effect	Run Settings take effect immediately PP/PV/HM/CSP/CSV	Data structure	-	Data type	Uint16
	accessibility	RW	Can map	-	Related patterns		Data range	0-20000.	Factory Settings	50

Set the level that meets the gain-switching condition.

The actual switching action is affected by the two conditions of class and time delay. See the description of 2008-0Ah for the specific influence mode. According to the different gain switching conditions, the unit of the switching level will change accordingly.

Subindex ODh	Name	Gain switching delay Gain switchover hysteresis			Set effective	Run Settings take effect immediately	Data structure	-	Data type	Uint16
	Accessibility	RW	Can map	-	Related patterns	PP/PV/HM/ CSP/CSV	Data range	0-20000.	Factory Settings	30

Set the time lag to meet the gain switching condition. The generation of actual switching action is affected by the two conditions of class and time delay. See the description of 2008-0Ah for specific effects. According to the different gain switching conditions, the unit of switching delay will change.

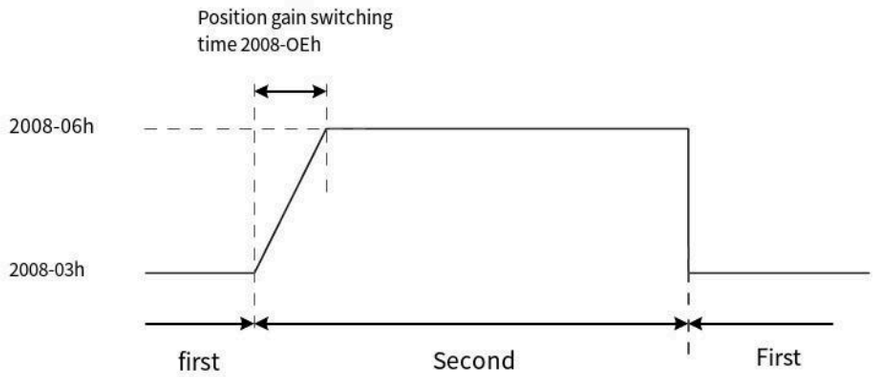
Note:

Please set 2008-0Ch > 2008-0Dh. If set 2008-0Ch<2008-0Dh, it will be set to 2008-0Ch=2008-0Dh internally.

Subindex OEh	Name	Position gain switchover time. Position Gain switchover Time			Setting takes effect	Run Settings take effect immediately PP/PV/HM/CSP/CSV	Data structure	-	Data type	Uint16
	Accessibility	RW	Ability to map	-	Correlation model		Data range	0 to 10000(unit: 0.1ms)	Factory Settings	30

When in position control mode, if 2008-06h (second position loop gain) is much larger than 2008-03h (position loop gain), set the time to switch from 2008-03h to 2008-06h after the switching action occurs.

Use this parameter to reduce the impact of increasing the position loop gain.



If 2008-06h ≤ 2008-03h, then this parameter is invalid, immediately switch to the second gain.

Subindex 10h	name	Average value ofload inertia ratio			Setting takes effect	Run Settings take effect immediately	Data structure	-	Data type	Uint16
	Accessibility	RW	Can map	-	Related patterns	ALL	Data range	0-12000 (units: 0.01 times)	Factory setting	100

Set the mechanical load inertia ratio relative to the motor's own moment of inertia.

Load moment of inertia ratio = Moment of inertia of mechanical load The moment of inertia of the motor itself

2008-10h=0 indicates that the motor is not loaded; 2008-10h=1.00 means that the mechanical load inertia is equal to the motor's own moment of inertia.

Using the inertia recognition function (both offline and online), the driver can automatically calculate and update the 2008-10h parameter values

When the online inertia identification mode (2009-04h #0) is used, the servo drive automatically sets this parameter, which cannot be manually set. When the online inertia identification mode is turned off (200904h=0), it can be manually set. Note:

When the value of the 2008-10h parameter is equal to the actual inertia ratio, the value of the speed loop gain (2008-01h/2008-04h) can represent the maximum following frequency of the actual speed loop.

Subindex 13h	Name	Speed feedforwardfilter time parameter Speed feedforwardfilter time constant			Setting takes effect	Run Settings take effect immediately	Data structure	-	Data type	Uint16
	accessibility	RW	Can map	-	Related modes PP/HM/CSP		Data range	0-6400 (units: 0.01 ms)	Factory Settings	50

Set the filtering time constant for speed feedforward.

Subindex 14h	Name	Speed feedforward gain Speed feedforward gain			Setting in effect	Run Settings take effect immediately	Data structure	-	Data type	Uint16
	Accessibility	RW	Can map	-	Related patterns PP/HM/CSP		Data range	0 to 1000(unit: 0.1%)	Factory Settings	0

Position control mode, full closed loop function, the speed feedforward signal multiplied by 2008-14h, the result is called speed feedforward, as part of the speed instruction. Increasing this parameter can improve the response of position instruction and reduce the position deviation at fixed speed.

When adjusting, first of all, set 2008-13h as a fixed value; Then, the 2008-14h set value is gradually increased from 0 until a certain set value, the speed feedforward effect.

When adjusting, the 2008-13h and 2008-14h should be adjusted repeatedly to find a good balanced setting.

Note: For the speed feedforward function enable and speed feedforward signal selection, please refer to 2005-14h(Speed feedforward Control Selection).

Subindex 15h	name	Torque feedforwardfilter time constant			Setting takes effect	Run Settings take effect immediately	Data structure	-	Data type	Uint16
	Accessibility	RW	Can map	-	Related patterns	PP/PV/HM/ CSP/CSV	Data range	0 to 6400 (units: 0.01 ms)	Factory Settings	50

Set the filtering time constant for torque feedforward.

Subindex 16h	name	Torque feedforward filter gain Torque feedforward gain			Set in effect	Run Settings take effect immediately	Data structure	-	Data type	Uint16
	Accessibility	RW	Can map	-	Related patterns	PP/PV/HM/ CSP/CSV	Data range	0-2000. (Unit: 0.1%)	Factory Settings	0

-
RW
PP/PV/HM/
0 ~ 4000
CSP/CSV
(
Hz)
4000

In non-torque control mode, multiply the torque feedforward signal by 2008-16h, and the resulting result is called torque feedforward as part of the torque instruction. Increasing this parameter improves responsiveness to changing speed instructions.

Increasing this parameter can improve the position command response and reduce the position deviation at fixed speed.

When adjusting torque feedforward parameters, first keep 2008-15h(torque feedforward filter time constant) as the default value, and gradually increase 2008-16h to increase the effect of torque feedforward; When the speed overshoot occurs, keep 2008-16h unchanged and increase 2008-20h. When adjusting, you should adjust 2008-15h and 2008-16h repeatedly to find a good balanced setting.

◀ Pay attention to:

◀ Please refer to 2006-0Ch (Torque Feedforward Control Selection) for the selection of the torque feedforward function enable and torque feedforward signal.

4000Hz

Subindex 17h	name	Speed feedback filter option			Set effective	Stop Settings	Data structure	-	Data type	Uint16
Subindex 19h	Name	Pseudo-differential forwardfeedback control coefficient. Pseudo-differential forwardfeedback control coefficient			Set effective	Run Settings take effect immediately	Data structure	-	Data type	Uint16
	accessibility	RW	Can map	-	Related patterns	PP/PV/HM/ CSP/CSV	Data range	0 to 1000(unit: 0.1%)	Factory Settings	1000

Set the nu

The greater

Set value	Setting of speed feedback filter
0	Speed feedback average filtering is disabled
1	Speed feedback 2 average filtering
2	Speed feedback 4 times average filtering
3	Speed feedback 8 times average filtering
4	Speed feedback 16 times average filtering

100.0
PI
(
)

0.0

◀ Note: 2008-19h

◀ 2008-17h>0 2008-18h(Velocity feedback low-pass filter cutoff frequency) is not valid.

Subindex 18h	Name	Velocity feedback low-pass filter cutoff frequency Cutoff frequency of speed feedback lowpass filter			Set effective	Run Settings take effect immediately	Data structure	-	Data type	Uint16

Index 2009h	Names	Auto-adjusting Parameters		Setting takes effect	-	Data structure	ARR	Data type	Uint16
	accessibility	-	Ability to map YES	Correlation model	-	Data Range OD Data range		Factory set OD defaults	
Set self-tuning parameters.									

Subindex 00h	Name	Maximum subindex Number Number of Entries		Set the effective mode	-	Data structure	-	Data type	Uint8
	accessibility	RO	Can map NO		-	Data range	-	Factory set data type	40

Subindex 01h	Name	Self-adjusting mode Select Auto-adjusting mode		Setting takes effect	Run Settings take effect immediately	Data structure	-		Uint16
	accessibility	RW	Can map -	Related patterns	ALL	Data range	0 ~ 4	Factory Settings	0

Set different gain adjustment modes, the relevant gain parameters can be set manually or automatically according to the rigid table.

Set Value	Self-adjusting pattern	Remarks
0	Parameter self-adjustment is invalid, manually adjust the gain parameters.	
1	Parameter self-adjustment mode, with a rigid table to automatically adjust the gain parameters.	The second set of gain does not change automatically with the rigid meter
2	Position the mode and automatically adjust the gain parameters with a rigid meter.	The second set of gain changes automatically with the rigidity table, and is always a higher rigid grade than the first gain, but does not exceed the highest rigid grade.
3	Parameter self-adjusting mode with friction compensation	The second set of gains does not change automatically with the rigid table
4	Positioning mode with friction compensation	The second set of gains varies automatically with the rigidity table and is always a higher rigid grade than the first gain, but does not exceed the highest rigid grade.

Subindex 02h	Name	Group 1 Rigidity Class selection Rigidity level selection		Set in effect	The running Settings take effect immediately	Data structure	-	Data type	Uint16
	accessibility	RW	Can map -	Related patterns	ALL	Data range	0-31	factory Settings	12

Set the rigidity of the servo system, the higher the rigidity level, the stronger the gain and the faster the response, but too strong rigidity will cause vibration. Level 0 has the weakest rigidity and level 31 the strongest.

Subindex 03h	Name	adaptive notch mode Working mode of self-Select Adaptive Notch		Setting takes effect	Run Settings take effect immediately PP/PV/HM/CSP/CSV	Data structure	-	Data type	Uint16
	Accessibility	RW	Can map -	Related patterns		Data range	0 to 4	Factory Settings	0

Set the operating mode of the adaptive trap.

Set value	The operating mode of the adaptive trap
0	The third and fourth set of adaptive notch parameters are no longer automatically updated, but can be entered manually.
1	One adaptive notch is valid, and the third set of notch parameters can be updated in real time according to the vibration situation and cannot be manually input.
2	2 adaptive traps are valid, the third and fourth group of traps parameters are updated in real time according to the vibration situation, and can not be manually input.
3	Test the resonant frequency only, shown in 2009-19h.
4	Clear the adaptive traps and restore the values of Group 3 and Group 4 traps to their factory state.

Subindex 04h	Name	On-line inertia identification model Online inertia auto tuning mode		Set effective	Run Settings take effect immediately	Data structure	-	Data type	Uint16
	accessibility	RW	Can map -	Related patterns	ALL	Data range	0-3	Factory Settings	0

(2009-06h=1)

0	Turn off online inertia identification.
1	Turn on online inertia identification and change slowly. It is suitable for occasions where the actual load inertia ratio is almost constant
2	Open online inertia identification, general change. It is suitable for the occasion when the actual load inertia ratio changes slowly
3	Turn on online inertia identification and change quickly. It is suitable for the occasion where the actual load inertia ratio changes rapidly

Subindex 05h	Name	Low-frequency vibrationmode selection		Setting takes effect	Run Settings take effect immediately	Data structure	-	Data type	Uint16
	accessibility	RW	Can map -	Related patterns	PP/HM/CSP	data range	0 ~ 1	Factory Settings	0

Set the mode for low frequency resonance suppression.

Set Value	Low frequency resonance suppression mode
0	Manually set the parameters of the low frequency resonance suppression filter (2009-27h and 2009-28h)
1	Automatically set the parameters of the low frequency resonance suppression filter (2009-27h and 2009-28h)

Subindex 06h	Name	Offline inertia recognition mode Select Offline inertia autotuning mode		Setting takes effect	The shutdown setting takes effect immediately	Data structure	-	Data type	Uint16
	accessibility	RW	Can map -	Related patterns	ALL	Data range	0 ~ 1	Factory Settings	0

Set the mode of offline inertia identification. Offline inertia identification function can be enabled by function code 200D-03h.

Set Value	Mode of off-line inertia identification	Remarks
0	Positive and negative triangular wave pattern	It is suitable for occasions where the motor movable stroke is short.
1	JOG spot mode	Suitable for long motor travel.

For off-line inertia identification operations refer to "8.2 Inertia Identification" on page 359.

Subindex 07h	Name	Maximum speed forinertia autotuning. Maximum speed forinertia autotuning		Setting takes effect	The shutdown setting takes effect immediately	Data structure	-	Data type	Uint16
	Accessibility	RW	Can map -	Related patterns	ALL	Data range	100 to 1000(unit: rpm)	Factory Settings	500

Set the maximum allowable motor speed instruction in off-line inertia recognition mode.

The greater the speed of inertia identification, the more accurate the identification result, usually keep the default value.

Subindex 08h	Name	When the moment of inertia identification accelerated to maximum speed Acceleration/Deceleration time constant time for inertia autotuning		Set effective	The shutdown setting takes effect immediately	Data structure	-	Data type	Uint16
	accessibility	RW	Can map -	Related patterns	ALL	Data range	20 to 800(in ms)	Factory setting	250

Set the time when the motor accelerates from Orpm to the maximum inertia identification speed (2009-07h) under off-line inertia identification.

Subindex 09h	Name	Wait time after single inertia identification is complete Interval after an inertia autotuning		Set effective	The shutdown setting takes effect immediately	Data structure	-	Data type	Uint16
	Accessibility	RW	Can map -	Related patterns	ALL	Data range	50 to 10000(in ms)	Factory setting	800

设置使用正反二角波模式离线惯量辨识功能（2009-06h=1）时连续两次速度指令间的时间间隔

Name Subindex OAh	Motor revolutions for an inertia auto-tuning		Set effective	-	Data structure	-	Data type	Uint16
accessibility	RO	Can map	-	Related patterns	0-65535 ALL	Data range	(Unit: r)	Factory Settings	0

Displays the number of turns the motor needs to turn when using the positive and negative triangular mode off-line inertia identification function (2009-06h=1).

◀ Note: When using the offline inertia identification function, be sure to ensure that the motor can run at this stop position is greater than the set value of 2009-0Ah, otherwise, the set value of 2009-07h or 2009-08h should be appropriately reduced until the requirement is met.

Subindex ODh	name	Group 1 Trap frequency		Set effective	Run the Settings immediately PP/PV/HM/CSP/CSV	Data structure	-	Data type	Uint16
		1st notch frequency							
	accessibility	RW	Can map	-	Related patterns	Data range	50-4000(unit: Hz)	Factory setting	4000

Set the trap's center frequency, the mechanical resonance frequency. In torque control mode, the notch function is invalid when the trap frequency is 4000Hz.

Subindex OEh	Name	Group 1 Notch width rating		Set effective	Run Settings take effect immediately PP/PV/HM/CSP/CSV	Data structure	-	Data type	Uint16
		1st notch width level							
	Accessibility	RW	Can map	-	Related patterns	Data range	0-20	Factory Settings	2

Set the width level of the trap, usually leave it at the default value.
Trap width rating: The ratio of trap width to trap center frequency.

Subindex OFh	Name	Group 1 notch depth class		Set effective	Run Settings take effect immediately	Data structure	-	Data type	Uint16
		1st notch attenuation level							
	accessibility	RW	Can map	-	Related patterns	PP/PV/HM/ CSP/CSV	Data range	0-99.	Factory Settings	0

Set the depth level of the trap.

Notch depth rating: The ratio relationship between the input and output at the center frequency of the notch.

The larger this parameter is, the smaller the notch depth is, and the weaker the suppression effect on mechanical vibration is, but setting too large may lead to system instability, which should be paid attention to when using.

Refer to "8.8 Vibration Suppression" on page 390 for instructions on how to use the trap.

Subindex 10h	name	Group 2 Trap frequency		Setting in effect	Run Settings With immediate effect	Data structure	-	Data type	Uint16
		2nd notch frequency							
	Accessibility	RW	Can map	-	Related patterns	PP/PV/HM/ CSP/CSV	Data range	50-4000(unit: Hz)	Factory setting	4000

Set the width level of the trap, usually just keep the default value.

Trap width rating: The ratio of trap width to trap center frequency.

Subindex 11h	Name	Group 2 Notch width rating		Set effective	Run Settings take effect immediately PP/PV/HM/CSP/CSV	Data structure	-	Data type	Uint16
		2nd notch width level							
	accessibility	RW	Can map	-	Related patterns	Data range	0-20	Factory Settings	2

Subindex 12h	Name	Group 2 Notch depth rating		Set effective	Run the Settings immediately PP/PV/HM/CSP/CSV	Data structure	-	Data type	Uint16
		2nd notch attenuation level							
	accessibility	RW	Can map	-	Related patterns	Data range	0-99.	Factory Settings	0

Subindex 13h	name	Group 3 Trap frequency 3rd notch frequency		Setting in effect	Run Settings take effect immediately	Data structure	-	Data type	Uint16
	Accessibility	RW	Can map 2009-20h	Related patterns	PP/PV/HM/ CSP/CSV	Data range	50-4000(unit: Hz)	Factory setting	4000

Subindex 14h	Name	Group 3 Notch width rating 3rd notch width level		Set effective	Run Settings take effect immediately	Data structure	-	Data type	Uint16
	Accessibility	RW	Can map -	Related patterns	PP/PV/M/ CSP/CSV	Data range	0-20	Factory Settings	2

Subindex 15h	Name	Group 3 Notch depth rating 3rd notch attenuation level		Set in effect	Run the Settings immediately PP/PV/HM/CSP/CSV	Data structure	-	Data type	Uint16
	accessibility	RW	Can map -	Related patterns	PP/PV/HM/ CSP/CSV	Data range	0-99.	Factory Settings	0

The parameters of the third set of traps, see 2009-0Dh, 2009-OEh, 2009-0Fh for parameter descriptions.

◀ Note: The third group of traps can be configured as an adaptive trap (2009-03h=1 or 2). At this time, the trap parameters are automatically updated by the servo driver and cannot be modified manually. When the trap frequency is 4000Hz, the trap function is invalid.

Subindex 16h	Name	Group 4 notch frequency 4th notch frequency		Setting takes effect	Run Settings take effect immediately PP/PV/HM/CSP/CSV	Data structure	-	Data type	Uint16
	Accessibility	RW	Can map -	Related patterns		Data range	50-4000 (unit: Hz)	Factory setting	4000

Subindex 17h	Name	Group 4 Notch width rating 4th notch width level		Set effective	Run the Settings immediately PP/PV/HM/CSP/CSV	Data structure	-	Data type	Uint16
	Accessibility	RW	Can map -	Related patterns		Data range	0-20	Factory Settings	2

Subindex 18h	Name	Group 4 Notch depth rating 4th notch attenuation level		Set in effect	Run the Settings immediately PP/PV/HM/CSP/CSV	Data structure	-	Data type	Uint16
	accessibility	RW	Can map -	Related patterns		Data range	0-99.	Factory Settings	0

The parameters of the fourth group trap, see 2009-0Dh, 2009-OEh, 2009-OFh for parameter descriptions. Note: The fourth group of traps can be configured as adaptive traps (2009-03h=1 or 2). At this time, the parameters are automatically set by the servo driver and cannot be modified manually. When the trap frequency is 4000Hz, the trap function is invalid.

Subindex 19h	Name	Resonance frequency identification results Obtained resonancefrequency		Setting effective	-	Data structure	-	Data type	Uint16
	accessibility	RO	Can map -	Related patterns	PP/PV/HM/ CSP/CSV	Data range	0-4000.	Factory Settings	0

2009-03h(Adaptive Notch Mode selection)=3 shows the current mechanical resonance frequency.

Subindex 1Fh	Name	Torque Disturbance compensation gain Disturbance torquecompensation gain		Setting in effect	Run Settings take effect immediately PP/PV/HM/CSP/CSV	Data structure -1000~	-	Data type	Uint16
	Accessibility	RW	Can map -	Related patterns		Data range	1000 (unit: 0.1%)	factory Settings	0

非转矩控制模式下，设置扰动转矩补偿增益的大小

Subindex 20h	name	Torque disturbance observer filter time constant Disturbance observer filter time constant		Set effective	Run Settings take effect immediately	Data structure	-	Data type	Uint16
	Accessibility	RW	Can map -	Related patterns	PP/PV/HM/ CSP/CSV	Data range	0-2500 (units: 0.01 ms)	Factory Settings	50

In non-torque control mode, set the filtering time constant of the disturbance torque compensation filter.

This parameter has a smoothing effect on 2009-1Fh disturbed torque compensation. The larger the filter time is set, the slower the disturbed torque compensation takes effect, but the noise will be reduced.

When adjusting, first of all, set 2009-20h as the larger value; Then, the set value of 2009-1Fh is gradually increased from 0 until a certain set value, the disturbance observer gets the effect; Finally, under the premise that the disturbance observer is always effective, the set value of 2009-20h is gradually reduced.

Subindex 27h	Name	Low-frequencyvibration frequency		Setting in effect	Run Settings take effect immediately	Data structure	-	Data type	Uint16
	Accessibility	RW	Can map -	Related patterns	PP/PV/HM/ CSP/CSV	Data range	10~1000(unit: 0.1Hz)	Factory Settings	1000

Position control, full closed loop function, set the frequency of low frequency resonance suppression filter, set to 100.0Hz, the filter is invalid. When 2009-05h=1(automatically set the low frequency resonance suppression parameter), this parameter is automatically set by the servo driver.

Subindex 28h	Name	Set the Filter of lowfrequencyvibration frequency		Setting takes effect	Run the Settings immediately PP/PV/HM/CSP/CSV	Data structure	-	Data type	Uint16
	accessibility	RW	Ability to map -	Related patterns		Data range	0 ~ 10	Factory Settings	2

Position control, full closed loop function, set the width level of the low frequency resonance suppression trap, usually keep the default value.

Set Value	Low frequency resonance suppresses center frequency	Low frequency resonance suppression width
0	2009-27h	0, that is, only the vibration at the center frequency is suppressed
1 ~ 10	2009-27h	(2009-27h)× (2009-28h)×4%

2009-28h with the increase of the setting value, the frequency range of low frequency resonance suppression can be increased, but the positioning time will be longer; But the set value is too small, in the load vibration frequency will change the occasion can not completely inhibit the low-frequency resonance (such as belt load), set, should be set while debugging. 2009-05h=1(automatically set the low frequency resonance suppression parameter), this parameter is automatically set by the servo driver.

2009-27h()=100.0Hz

200Ah

index 200Ah	Name	Fault and protection parameters Fault and Protection			Set effective	-	Data structure	ARR	Data type	Uint16
	accessibility	-	Ability to map	YES	Correlation model	-	Data range	OD data range	Factory Settings	OD default
Set fault and protection class parameters.										

Subindex 00h	Name	Maximum subindex Number Number of Entries			Setting takes effect	-	Data structure	ARR	Data type	Uint8
	accessibility	RO	Can map	NO	Correlation model	-	Data range	-	Factory Settings	34

Subindex 01h	Name	Power inputphase loss protection			Set effective	Effective immediately	Data structure	-	Data type	Uint16
	accessibility	RW	Can map	-	Related patterns	-	Data range	0-2	Factory Settings	0

The main circuit power input specifications vary according to the servo drive model, please refer to the function code 2001-02h. Our company has support single-phase 220V, three-phase 220V and three-phase 380V input voltage levels of the servo driver series, when the input voltage has a large fluctuation or phase loss phenomenon, the driver can be according to the 200A-01h setting, flexible choice of power input phase loss protection.

Setting Value	Missing phase protection method	Remarks
0	Enable fault prohibit warning	Er.420 will occur for drives rated at 1kW and above (2001-02h >6) with a single phase specification for the main loop input voltage.
1	Enable faults and warnings	A drive rated at 1kW or above (2001-02h >6) with a single phase specification for the main loop input voltage will occur with Er.420 Er.990 will occur for a drive rated at 0.75kW (2001-02h=5) with a single phase specification for the main loop input voltage.
2	Forbid glitches and warnings	Neither fault Er.420 nor warning Er.990 will be reported. For common bus wiring, set 200A-01h to 2, otherwise the drive cannot enter rdy after power-on. When the 200A-01h is set to 2, the power-off release and power-off memory functions cannot be performed.

◆ Note: When 200A-01h=2, the servo drive can satisfy the main circuit to be powered on and off separately, that is, when the control power supply does not fail, disconnect the main circuit power supply. When 200A-01h=2, it is necessary to ensure that the input of three-phase 220V or three-phase 380V is normal because phase fault detection cannot be performed. Otherwise, the module will be damaged.

Subindex 02h	Name	Absolute Position Limit Set			Setting takes effect	The shutdown setting takes effect immediately	Data structure	-	Data type	Uint16
	accessibility	RW	Can map	-	Related patterns	ALL	Data range	0-2	Factory Settings	0

Set whether absolute location limits are in effect, and the conditions under which they are in effect.

Set value	Absolute position limits choice
0	Disable absolute position restriction
1	Enable absolute position limit
2	Enable absolute position restriction after the origin is returned to zero

After the absolute position limit takes effect, in the position class mode, when the target position instruction exceeds the limit value, the servo runs with the limit value as the target value, and stops after it is in place; In non-position mode, when the servo absolute position feedback reaches the limit value, overrange fault occurs, and the servo stops by overrange stop mode (2002-08h).

Subindex 04h	Name	power down Save function Enable Select Retentive at power failure			Set effectuation-related modes	Run Settings take effect immediately	Data structure	-	Data type	Uint16
	Accessibility	RW	Can map	-		-	Data range	0 ~ 1	Factory Settings	0

Whether to perform power down save function Select:

Set Value	Function	Remarks
0	Not enable	The power-off save function is not enabled
1	Enable	When the power failure save function is executed, the drive will automatically save the encoder feedback pulse meter value (200B-12h) when the power failure is performed. After the power is powered on, you can view it through the corresponding function code.

Subindex 05h	Name	Motor overload protection gain Motor overload protection gain			Set effective	The running Settings take effect immediately	Data structure	-	Data type	Uint16
	Accessibility	RW	Can map	-	Related patterns	-	Data range	50-300 (units: %)	Factory Settings	100

Through 200A-05h, set the time reported by the motor overload fault Er.620. Change the value according to the heating condition of the motor, you can advance or delay the time of overload protection failure of the motor, 50% can reduce the time by half, and 150% will increase to 1.5 times.

The setting of the value should be based on the actual heating of the motor, and it should be used with caution!

Name Subindex 09h		Overspeed fault threshold Overspeed threshold			Setting takes effect	The running Settings take effect immediately	Data structure	-	Data type	Uint16
	Accessibility	RW	Can map (200B-01h),	-	Related patterns	ALL	Data range	0 to 10000(unit: rpm)	Factory Settings	0

Set the motor speed threshold in case of overspeed failure of the drive.

Set value	Decision threshold	Overspeed fault Er.500 decision condition
0	Max motor speed x 1.2	When the speed feedback value is greater than the overspeed fault threshold for many times, the drive occurs Er.500 (overspeed fault).
1-10000	If 200A-09h >(motor maximum speed x 1.2) Overspeed fault threshold: motor maximum speed x 1.2 If 200A-09h<(motor maximum speed x 1.2) overspeed fault threshold: 200A-09h	

Subindex ODh	Name	Runaway protection enables Runaway Protection			Settings enabled	Run Settings take effect immediately	Data structure	-	Data type factory Settings	Uint16
	accessibility	RW	Can map	-	Related patterns	ALL	Data range	0 ~ 1		1

The car protection function is enabled:

Set Value	Function	Remarks
0	Unenable	When in a vertical or towed load application, set 200A-ODh to zero to block vehicle fault (Er.234) detection.
1	Enable.	Enable the ride protection function.

Subindex 11h	Name	Low frequency resonance position deviation judgment threshold Position deviation threshold in low-frequency vibration			Set effective	Run Settings take effect immediately	Data structure	-	Data type	Uint16
	accessibility	RW	Can map	-	Related modes	PP/HM/CSP	Data range	1 to 1000 (unit: 0.0001r)	Factory Settings	5

Set the servo drive to enable the automatic low frequency resonance suppression function (2009-05h=1), to judge whether the machine has low frequency resonance, the position deviation judgment threshold. When the position deviation is greater than the 200A-11h setting value, it is considered that the low-frequency resonance has occurred; Reducing 200A-11h can improve the detection sensitivity of low frequency resonance.

Subindex 14h	Name	DI8 filter time constant DI8 Filter Time			Parameter Description Setting Mode setting takes effect	Shutdown Settings Power on again	Data structure	-	Data type	Uint16
	Accessibility		Can map	-		-	data range	0 to 255(unit: 25ns)	Factory Settings	80

Subindex 15h	Name	RWDI9 filter time constant DI9 filter time				Shutdown Settings Power up again	Data structure	-	Data type	Uint16
	accessibility	RW	Can map	-	Related patterns	-	Data range	0 to 255(unit: 25ns)	Factory Settings	80

DI8 and DI9 are high speed DI input ports that filter out peak interference when there is peak interference in the external input signal by setting 200A-14h or 200A-15h.

◆ Note: The signal of DI8 and DI9 before filtering is displayed in the oscilloscope of Huichuan drive debugging platform, and the signal width is less than 0.25ms.

Subindex 1Ah	name	Speed Feedback Display Value Filter time constant Filter time of speed feedback display			Set effective	Shutdown Settings take effect immediately	Data structure	-	Data type	Uint16
	Accessibility	RW	Can map	-	Related patterns	ALL	Data range	0-5000 (in ms)	Factory setting	50

Set the filtering time constant when the speed feedback signal is used for display to make the speed display smoother.

Subindex 1Bh	Name	Motor overload shielding is enabled Motor overload shielding	Set in effect	Stop setting With immediate effect	Data structure	-	Data type	Uint16
	Accessibility	RW	Can map	-	Related patterns	-	Data range	0 ~ 1	Factory Settings	0

Set whether to enable motor overload detection.

Set Value	Function
0	Open motor overload detection.
1	Shield motor overload warning (Er.909) and fault (Er.620) detection.

0 - 0

1 - 1 Note: Use motor overload shielding function with caution, otherwise it will cause motor to burn out!

Subindex 1Ch	Name	Speed DO filtering time constant Speed DO Filter time constant	Set effective	The shutdown setting takes effect immediately	Data structure	-	Data type	Uint16
	accessibility	RW	Can map	-	Related patterns	ALL	Data range	0 to 5000 (in ms	Factory setting	10

Set the low-pass filtering time constant for the speed feedback signal. This parameter is only valid if the speed feedback signal is used to judge the speed dependent DO output signal.

Name Subindex 1Dh		Orthogonal encoder filter time constant Quadrature encoder filter time	Set in effect	Shutdown Settings re-energize	Data structure	-	Data type	Uint16
	Accessibility	RW	Can map	-	Related patterns	ALL	Data range	0 to 255 (unit: 25ns	Factory setting	30

After setting this parameter, the spike interference existing in the feedback signal of the incremental orthogonal encoder can be filtered and suppressed. Given the actual speed of the motor, the recommended value of the filtering time constant is shown in the following table:

Actual motor speed (unit: rpm)	Recommended filtering parameters (unit: 25ns)
4000 ~ 6000	20
< 4000	30

Subindex 21h	Name	Overheat protection timeduration for locked rotor. Overheat protection timeduration for locked rotor	Setting in effect	Run Settings take effect immediately	Data structure	-	Data type	Uint16
	accessibility	RW	Can map	-	Related patterns	-	Data range	10 to 65535(in ms)	Factory Settings	200

Set the time threshold for the servo drive to detect the gridlock turn temperature fault (Er.630). By changing 200A-21h, you can adjust the sensitivity of the turn temperature fault detection.

Subindex 22h	Name	The Overheat protectionfor locked rotor is enabled	Setting takes effect	Run Settings take effect immediately	Data structure	-	Data type	Uint16
	accessibility	RW	Can map	YES	Correlation model	-	Data range	0 ~ 1	Factory Settings	1

Set whether to enable motor locked-turn temperature protection (Er.630) detection:

Set Value	Function
0	Shielded motor plug turn temperature protection (Er.630) detection
1	Enable the motor lock-turn temperature protection (Er.630) detection

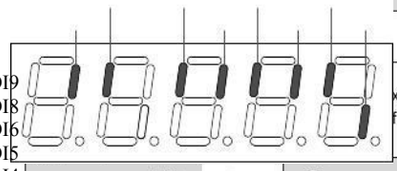
Subindex 25h	Name	Absolute encoder multi-turn overflow fault selection Absolute encode mutiturns error forbidden	Set to take effect	The shutdown setting takes effect immediately	Data structure	-	Data type	Uint16
	accessibility	RW	Can map	NO	Correlation model	ALL	Data range	0 ~ 1	Factory Settings	1

Shield Er.735 in absolute position linear mode by setting 200A-25h (encoder multi-turn overflow fault).

Set Value	Function

200Bh

index	Name	Monitoring parameters Display Parameters	Set effective	-	Data structure	ARR	Data type	Uint16
200Bh	DI1, DI2, DI6, DI8, DI9, 110111110		200B-04h	446				
	accessibility	Ability to map YES	Correlation model		Data range	OD data range	Factory Settings	OD default



DI9
DI8
DI6
DI5
DI4
DI3
DI2
DI1

	Name		Setting takes effect	-	Data structure	ARR	Data type	Uint8
	accessibility	RO	Can map	NO	Correlation model	-	Data range	-	Factory Settings	65

Subindex 01h	Name	Actual motor speed Actual motor rotational speed	Set effective	-	Data structure	-	Data type	int16
	accessibility	RO	Can map	-	Related patterns	ALL	Data range	- (in rpm)	Factory Settings	-

Displays the actual speed of the servo motor, rounded to 1rpm accuracy.

Filter time constant for 200B-01h can be set by 200A-1Ah(speed feedback display value filter time constant).

1
1
1
1
1
1
0

Subindex 02h	Name	Speed instruction Speed reference	Setting in effect	-	Data structure	-	Data type	int16
	accessibility	RO	Can map	-	Related patterns	PP/PV/HM/ CSP/CSV	Data range	- (in pm)	Factory Settings	-

In Position and speed mode, display the drive's current speed instruction value with an accuracy of 1rpm.

Subindex 03h	Name	Internal torque Instruction reference	Setting in effect	-	Data structure	-	Data type	int16
	Accessibility	RO	Can map	-	Related patterns	ALL	Data range	- (in %)	Factory Settings	-

Displays the current torque instruction value with an accuracy of 0.1%, 100.0% corresponding to 1 times the motor rated torque.

Sub-index 04h	Name	Input signal (DI signal) Monitor Monitored DI states	Set effective	-	Data structure	-	Data type	Uint16
	accessibility	RO	Can map	-	Related patterns	-	Data range	-	Factory Settings	-

Displays the current level state of the 8 hardware DI terminals, unfiltered.

Subindex 06h	Name	Output signal (DO signal) monitoring Monitored DO states			Set in effect	-	Data structure	-	Data type	Uint16
	accessibility	RO	Can map	-	Related patterns	-	Data range	-	Factory Settings	-

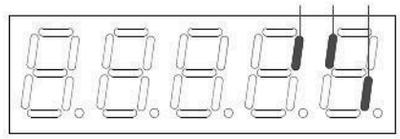
DO
3

(
1
)
(
0
)

DO1
DO2 DO3
110
200B-06h

6

DO2 DO3 | DO1



High high
low 1, 10, 0

Subindex 08h	Name	Absolute position counter. Absolute Position counter			Setting in effect	-	Data structure	-	Data type factory	int32
	accessibility	RO	Can map	-	Related patterns	ALL	Data range	(Unit: instruction unit)	Settings	0

In position mode, the current absolute position (command unit) of the motor is displayed. The function code is 32-bit, and the panel displays decimal data.

Subindex OAh	Names	Mechanical angle			Set to work	-	Data structure	-	Data type factory	Uint16
	Accessibility	RO	Can map	-	Related patterns	ALL	Data range	(In: encoder units)	Settings	-

Displays the current mechanical Angle of the motor (encoder unit), 0 corresponding to the mechanical Angle of 0°.

$$\text{Actual mechanical Angle} = -\frac{\text{200B:0Ah}}{\text{200B:0Ah Max +1}} \times 360.0\,^{\circ}$$

Incremental encoder 200B-0Ah Max: Number of encoder lines x 4-1(Example: 2500 wire incremental encoder, 200B-0Ah Max is 9999)

Absolute encoder 200B-0Ah Max: 65535

Subindex OBh	Name	Electrical angle. Electrical Angle			Set effectuation-related modes	-	Data structure	-	Data type factory	Uint16
	accessibility	RO	Can map	-		ALL	Data range	(Unit: 0.1°)	set	-

Displays the current electrical Angle of the motor with an accuracy of 0.1°. When the motor rotates, the range of electrical Angle is 0~360.0°; When the motor is 4 poles, the motor will go through 4 0°~359° changes per rotation; Similarly, when the motor is 5 poles, the electrical Angle of the motor will be changed by 5 times 0°~359° per rotation.

Subindex OCh	Names	Enter position instructions corresponding to speed information Speed corresponding to input position reference			Set effective	-	Data structure	-	Data type	int16
	accessibility	RO	Can map	-	Related patterns	PP/HM/CSP|	Data range	(Unit: rpm)	Factory Settings	-

In Position mode, displays the speed value corresponding to the position instruction for a single position control cycle of the drive. Through 200A-1Ch, you can set the filtering time constant when the position instruction is converted into speed information.

Name	Average load rate	Set to take effect	-	Data structure	-	Data type	int16
Subindex ODh	Average load rate						
Accessibility	RO	Can map	-	Related patterns	ALL	Data range	(in %)	Factory Settings	-

Displays the average load torque as a percentage of the rated torque of the motor, with an accuracy of 0.1% and 100.0% corresponding to 1 times the rated torque of the motor

Subindex OEh	Name	Enter the Location Instruction counter Input reference pulse counter	Setting takes effect	-	Data structure	-	Data type	int32
	accessibility	RO	Can map	-	Related mode |PP/HM/CSP| Scope of data	(In units: instruction units	Factory setting	0

In position mode, during servo operation, the number of position instructions that have not been doubled by electronic gear is counted and displayed. The function code is 32-bit, and the panel is displayed as decimal data.

Subindex 10h	Name	Encoder positiondeviation counter	Set to take effect	-	Data structure	-	Data type	int32
	accessibility	RO	Can map	-	Related patterns PP/HM/CSP data range	(Unit: encoder unit)	Factory setting	-

In position mode, statistics and display the position deviation value of the electronic gear after frequency doubling. The function code is 32-bit and the panel is displayed as decimal data.

◀ Note:

◀ 200B-10h can be zeroed when the conditions set for 2005-11h(Position deviation clearance condition) are met.

Subindex 12h	Name	Feedback pulse counter Feedback pulse counter	Set effective	-	Data structure	-	Data type	int32
	Accessibility	RO	Can map	-	Related patterns ALL	Data range	(In: encoder units)	Factory setting	-

In any mode, count the position pulses fed back by the encoder. This function code is 32-bit and the panel is displayed as decimal data.

◀ Note:

◀ When using an absolute motor, the 200B-12 can only reflect the low 32 bits of the motor position feedback, in which case the actual motor position feedback must be obtained by passing 200B-4E(the absolute encoder absolute position is 32 bits lower) and 200B-50(the absolute encoder absolute position is 32 bits higher).

Subindex 14h	Name	Total power-on time Total power-on time	Set effective	-	Data structure	-	Data type	Uint32
	accessibility	RO	Can map	-	Related patterns -	Data range	(Unit: s)	Factory setting	-

This function code is used to record the total time the servo drive has been running. The function code is 32-bit and the panel displays decimal data.

◀ Note:

◀ When the drive is powered on and off several times in a short period of time, there may be a deviation of less than 1 hour in the total power-on time record.

Subindex 19h	Name	Phase current effective value Phase current valid value	Set in effect	-	Data structure	-	Data type	Uint16
	Accessibility	RO	Can map	-	Related patterns -	Data range	(Unit: A)	Factory setting	-

Servo motor phase current RMS value, display accuracy is 0.01A.

Subindex 1Bh	Name	Bus voltage value Bus voltage	Set in effect	-	Data structure	-	Data type	Uint16
	accessibility	RO	Can map	-	Related patterns -	Data range	(Unit: V)	Factory Settings	-

The DC bus voltage value of the driver main circuit input voltage after rectification, the display accuracy is 0.01V.

Subindex 1Ch	Name	Module temperature Module temperature	Set in effect	-	Data structure	-	Data type	Uint16
	Accessibility	RO	Can map	-	Related patterns	-	Data range	(Unit: ° C) Factory setting -

The temperature of the internal module of the drive can be used as a reference value for the actual temperature of the current drive.

Subindex 22h	Name	The fault record is Displayed	Setting takes effect	-	Data structure	-	Data type	Uint16
	accessibility	RW	Can map	-	Related patterns	-	Data range	0-9 factory Settings -

Used to select to view the last 10 failures of the servo drive, the function code is used to set the number of failures to be viewed:

Set Value	The number of failures selected
0	Current fault
1	Previous fault
2	Last 2 failures
.....	.....
9	Failure on 9

Subindex 23h	Name	Fault code The selected times Fault code upondisplayed fault	Settings take effect	-	Data structure	-	Data type	Uint16
	accessibility	RO	Can map	-	Related patterns	-	Data range	- Factory Settings -

Subindex 24h	Name	Selected fault Time stamp Time stamp upondisplayed fault	Setting takes effect	-	Data structure	-	Data type	int32
	accessibility	RO	Can map	-	Related patterns	-	Data range	(Unit: s) Factory Settings -

Subindex 26h	Name	Current rotational speed of the motor displayed fault at the selected fault	Setting takes effect	-	Data structure	-	Data type	int16
	accessibility	RO	Can map	-	Related patterns	-	Data range	(in rpm) Factory Settings -

Subindex 27h	Name	Motor U-phase current at selected fault Current U upon displayed fault	Set effective	-	Data structure	-	Data type	int16
	accessibility	RO	Can map	-	Related patterns	-	Data range	(Unit: A) factory Settings -

Subindex 28h	Name	Motor V phase current at selected fault Current V upon displayed fault	Set effective	-	Data structure	-	Data type	int16
	accessibility	RO	Can map	-	Related patterns	-	Data range	Data type (unit: A) Factory Settings -

Subindex 29h	Name	Bus voltage upondisplayed fault at selected fault	Setting takes effect	-	Data structure	-	Data type	Uint16
	accessibility	RO	Can map	-	Related patterns	-	Data range	(Unit: V) Factory Settings -

Subindex 2Ah	Name	Enter terminal status when the fault is selected Input terminal state upon displayed fault	Set effective	-	Data structure	-	Data type	Uint16
	accessibility	RO	Can map	-	Related patterns	-	Data range	- Factory Settings -

Subindex 2Bh	Name	Output terminal status when the fault is selected Output terminal state upon displayed fault	Set effective	-	Data structure	-	Data type	Uint16
	accessibility	RO	Can map	-	Related patterns	-	Data range	-	Factory Settings	-

200B-23h to 200B-2Bh are used to view the corresponding parameter information displayed in 200B-23h when a fault occurs.

Subindex 36h	Name	Reference position deviation counter	Setting in effect	-	Data structure	-	Data type	int32
	accessibility	RO	Can map	-	Related patterns	PP/HM/CSP	Data range	(Unit: instruction unit)	Factory Settings	-

In position control mode, the position deviation value without the electronic gear score frequency doubling. The function code is 32-bit and the panel displays decimal data.

Note: Position deviation (instruction unit) is the value after converting the encoder position deviation, there is a loss of accuracy.

Subindex 38h	Name	Actual motor speed Actual motor rotational speed	Set in effect	-	Data structure	-	Data type	int32
	accessibility	RO	Can map	-	Related patterns	-	Data range	(in rpm)	Factory Settings	-

Displays the actual operating speed of the servo motor with an accuracy of 0.1rpm. This function code is 32-bit and the panel is displayed as decimal data. The speed feedback filter time constant can be set for display by 200A-1Ah.

Subindex GEMAH	Name	Control electrical bus voltage Control bus voltage	Set effective	-	Data structure	-	Data type	Uint16
	accessibility	RO	Can map	-	Related patterns	-	Data range	-	Factory Settings	-

Display the DC bus voltage value of the control electrical input power after rectification.

Subindex 3Bh	Name	Mechanical absolute position lower 32 bits Mechanical absolute position inc(Low)	Set effective	-	Data structure	-	Data type	int32
	Accessibility	RO	Can map	-	Related patterns	ALL	Data range	- (Units: eds Coder unit)	Factory Settings	-

Displays the mechanical corresponding position feedback lower 32 bit value (encoder unit) when using the absolute value function.

Subindex 3Dh	Name	Mechanical absolute position 32 bits higher Mechanical absolute position inc(High)	Set effective	-	Data structure	-	Data type	int32
	accessibility	RO	Can map	-	Related patterns	ALL	Data range	(In: encoder units)	Factory setting	-

Displays the mechanical position corresponding to a higher 32 bit value (encoder unit) when the absolute value function is used.

Subindex 3Fh	Name	Drive output line voltage RMS	Setting effective	Display parameters	Data structure	-	Data type	Uint16
	accessibility	RO	Can map	-	Related patterns	-	Data range	0-65535.	Factory Settings	0

Tian industrial six anti two big Hill's generation pressure right big estimate
Line voltage RMS for monitoring drive output

Subindex 41h	Name	Enter the location instruction counter in real time Real Time Input reference pulse counter			Set effective	-	Data structure	-	Data type	int32
	accessibility	RO	Can map	-	Related patterns	ALL	Data range	- (Unit: instruction unit)	Factory Settings	-
Display real-time position instruction counter, independent of servo control mode and servo state.										

Subindex 47h	Name	Number of turns ofabsolute encoder. Number of turns ofabsolute encode			Setting in effect	-	Data structure	-	Data type	Uint16
	accessibility	RO	Can map	TPDO	Correlation model	ALL	Data range	-	Factory Settings	-
Shows the absolute number of revolutions of the encoder.										

Subindex 48h	Name	Absolute encoder single-turn position feedback Single feedback postion of absolute encode			Set in effect	-	Data structure	-	Data type	int32
	accessibility	RO	Can map	TPDO	Correlation model	ALL	Data range	- (Units: eds Coder unit)	Factory Settings	-
Displays the encoder's single-turn position feedback value.										

Subindex 4Eh	Name	Absolute encoder absolute position is 32 bits lower feedback postion of absolute encode(Low)			Set effective	-	Data structure	-	Data type	int32
	Accessibility	RO	Can map	TPDO	Correlation model	ALL	Data range	- (Units: eds Coder unit)	Factory Settings	-
Display the encoder's position feedback value, low 32 bits of data.										

Subindex 50h	Name	Absolute encoder absolute position 32 bits higher feedback postion of absolute encode(High)			Set effective	-	Data structure	-	Data type	int32
	Accessibility	RO	Can map	TPDO	Correlation model	ALL	Data range	- (Units: eds Coder unit)	Factory Settings	-
Display absolute encoder position feedback value, high 32 bit data.										

Subindex 52h	Name	Rotating load single turn position low 32 bits Single feedback postion inc of rotating load(Low)			Set effective	-	Data structure	-	Data type	Uint 32
	accessibility	RO	Can map	TPDO	Correlation model	ALL	Data range	(In: encoder units)	Factory setting	-
Display absolute value The position feedback value of the rotating load when the system is operating in rotation mode (2002-02=2), low 32 bit data, encoder unit.										

Subindex 54h	Name	Rotating load single turn position 32 bits higher Single feedback postion inc of rotating load(High)			Set effective	-	Data structure	-	Data type	Uint32
	Accessibility	RO	Can map	TPDO	Correlation model	ALL	Data range	- (In: encoder units)	Factory setting	-
Display absolute value The position feedback value of the rotating load when the system is operating in rotation mode (2002-02=2), high 32 bit data, encoder unit.										

Subindex 56h	Name	Rotating load one turn position Single feedback postion of rotating load		Set in effect	-	Data structure	-	Data type	Uint 32
	accessibility	RO	Can map TPDO	Correlation model	ALL	Data range	- (Unit: instruction unit)	Factory Settings	-
Display absolute value The position feedback value of the rotating load when the system is operating in rotation mode (2002-02=2), the unit of instruction.									

200Ch

index 200Ch	Name	Communication parameters Communication Parameters		Set effective	-	Data structure	ARR	The data type is Uint16	
	accessibility	-	Ability to map -	Related patterns	-	Data range	OD data range	Factory Settings	OD default
Set communication class parameters.									

Subindex 00h	Name	Maximum subindex Number Number of Entries		Setting takes effect	-	Data structure	ARR	Data type Uint8	
	Accessibility	RO	Can map NO	Correlation model	-	Data range	-	Factory Settings	27

Subindex 01h	Name	Drive address Servo shaft address		Set effective	Run Settings take effect immediately	Data structure	-	Data type Uint16	
	Accessibility	RW	Can map -	Related patterns	-	Data range	1-247.	Factory Settings	1

232

0

1 247

Serial port baud rate

-

Uint16

03h

RW

-

-

0 ~ 5

5

Set value	Baud rate setting
0	2400bps
1	4800bps
2	9600bps
3	19200bps
4	38400bps
5	57600bps

Subindex 04h	Name	Modbus data format Modbus data format			Setting takes effect	Run Settings take effect immediately	Data structure	-	Data type	Uint16
	accessibility	RW	Can map	-	Related patterns	-	Data range	0-3	Factory Settings	0

Set the data verification method when the drive communicates with the upper computer.

Set Value	Data format
0	No check, 2 end bits
1	Even check, 1 end bit
2	Parity check, 1 end bit
3	No check, 1 end bit

The data format of the servo drive must be the same as that of the host computer, otherwise the communication cannot be carried out.

Subindex 05h	Name	Site name rectification Station auto inc adddress			Set effective	-	Data structure	-	Data type	Uint16
	accessibility	RO	Can map	NO	Correlation model	-	Data range	-	Factory Settings	-

For master stations that are automatically assigned station numbers, show the station number to which the slave station was assigned when communicating with EtherCAT.

Subindex 06h	Name	Site alias Stationalias			Setting in effect	The shutdown setting takes effect immediately	Data structure	-	Data type	Uint16
	accessibility	RW	Can map	NO	Correlation model	-	Data range	0-65535.	Factory Settings	0

For master stations that cannot automatically assign station numbers, set the slave station number through this object when communicating with EtherCAT.

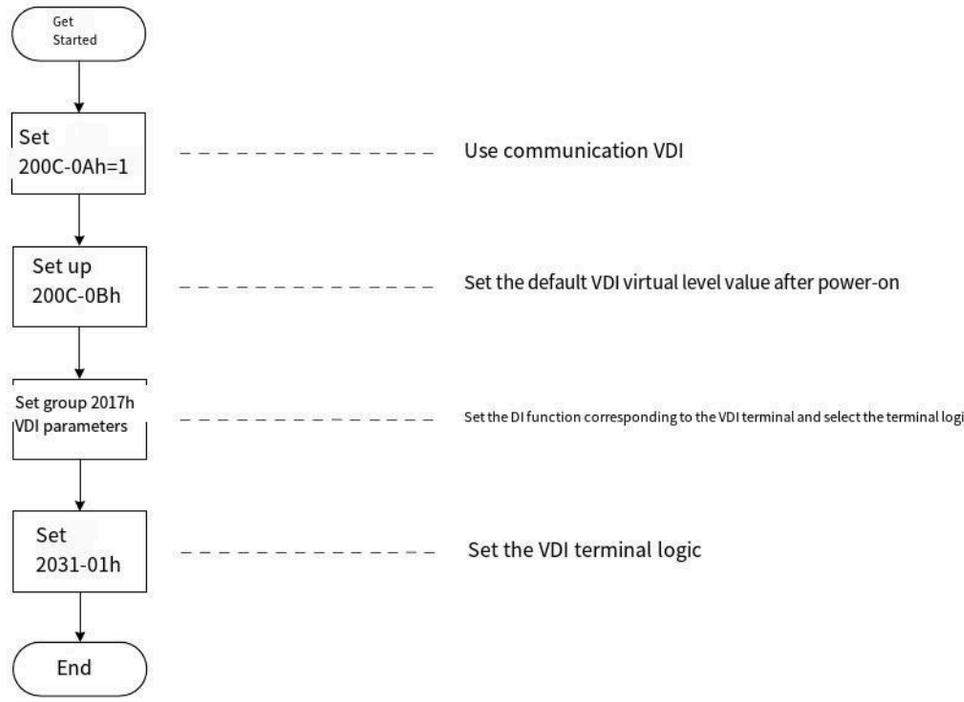
Subindex OAh	Names	通信 VDI Communication virtual DI			Set effective	The shutdown setting takes effect immediately	Data structure	-	Data type	Uint16
	accessibility	RW	Can map	-	Related patterns	-	Data range	0 ~ 1	Factory Settings	0

Set whether to use the Visual Digital Input terminal (VDI).

Set Value	Communication VDI
0	Prohibited
1	Enable

Subindex OBh	Name	Default value of VDI after power-on Default virtual level of VDI at power-on			Set effective	Run Settings Power on again	Data structure	-	Data type	Uint16
	accessibility	RW	Can map	-	Related patterns	-	Data range	0 ~ 65535	Factory Settings	0

Set the default value of VDI after power-on. Follow these steps to use VDI:



For the first power-on, the VDI terminal logic is determined by 200C-0Bh. After that, the VDI terminal logic is determined by 2031-01h(VDI virtual level). 200C-0Bh is displayed as decimal on the panel, and 2031-01h panel is not visible. After conversion to binary, bit(n)=1 of 200C-0Bh(2031-01h) indicates that VDI(n+1) terminal logic is "1", and bit(n)=0 indicates that VDI(n+1) terminal logic is "0".

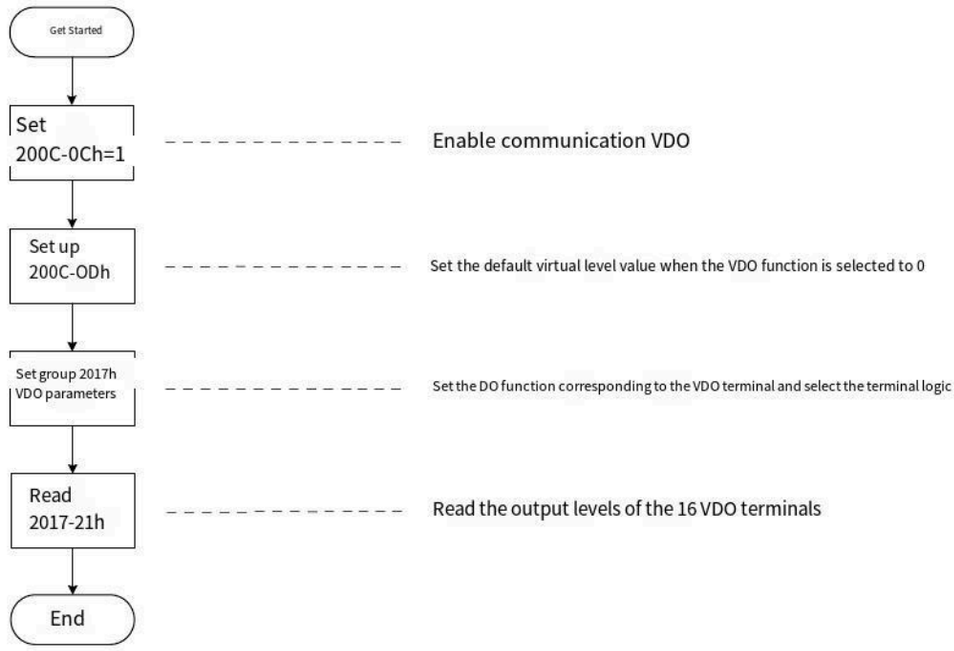
Subindex 0Ch	Name	通信 VDO Communication virtual DO			Set effective	The shutdown setting takes effect immediately	Data structure	-	Data type factory	Uint16
	Accessibility	RW	Can map	-	Related patterns	-	Data range	0 ~ 1	Settings	0

Set whether to use the Visual Digital Output terminal (VDO).

Set Value	Communication VDO
0	Forbidden
1	Enable

Subindex ODh	Name	Default level when the VDO function is selected to 0 Default virtual level of VDO allocated with function 0			Set in effect	Stop setting Effective immediately	Data structure	-	Data type	Uint16
	accessibility	RW	Can map	-	Related patterns	-	Data range	0 ~ 65535	Factory Settings	0

Set the default virtual level value when the VDO function is selected to 0 (DO function is not assigned). Follow these steps to use VDO:



200C-ODh and 2017-21h are displayed as hexadecimal on the panel, and when converted to binary, the bit(n)=1 of 200C-0Dh (2017-21h) means that the VDO(n+1) terminal logic is "1", bit(n)=0 indicates that the VDO(n+1) terminal logic is "0".

It is recommended that group 2017h VDO terminal logic level selection be set to the opposite logic to 200C-0Dh for easy differentiation.

Subindex OEh	Name	Whether the communication write parameter is updated to EEPROM Update function code values written via communication to EEPROM			Set effective	Run Settings take effect immediately	Data structure	-	Data type	Uint16
	accessibility	RW	Can map	-	Related patterns	-	Data range	0-3	Factory Settings	3

Set whether the parameters written by 232 communication and EtherCAT communication (EtherCAT only means write using SDO) are stored in EEPROM.

Set value	Communication write function code updated to EEPROM
0	Do not save.
1	2000h Series object dictionary communication is written and stored in EEPROM including EtherCAT communication with 232 communication
2	6000h series object dictionary communication is stored in EEPROM after writing Include only EtherCAT communication
3	2000h series and 6000h series object dictionary communication are written and stored in EEPROM Include only EtherCAT communication

Note: Change values for 200C-OEh will always be saved into EEPROM. If the changed parameter does not need to be saved by power failure, please set 200C-OEh to 0, otherwise, a large number of changes to the function code value for a long time and stored in the EEPROM will cause damage to the EEPROM and the drive will suffer Er.108(parameter storage failure).

Subindex 24h	Name	EtherCAT Sync interrupt loss allowed number of times Sync lost window			Setting in effect	Run Settings take effect immediately	Data structure	-	Data type	Uint16
	accessibility	RW	Can map	-	Related patterns	-	Data range	4-100.	Factory Settings	20

Set the maximum number of times the master signal can be lost by the slave station, beyond this value, the slave station will prompt Er.E08(Sync loss fault).

Subindex 25h	Name	Port0 The CRC check of the port is incorrect Porto CRC error			Set in effect	Display parameters	Data structure	-	Data type	Uint16
	accessibility	RO	Can map	-	Related patterns	-	Data range	0-65535.	Factory Settings	0

Port0 CRC Port0 PHY 0x301 RX-ER 0x300=0x301 0x300 0x301 CRC

Subindex 26h	Name	Port1 Port CRC check error Port1 CRC error			Setting takes effect	Display parameters	Data structure	-	Data Type	Uint16
	accessibility	RO	Can map	-	Related patterns	-	Data range	0-65535.	Factory Settings	0

Port1 CRC Port0 PHY 0x301 RX-ER 0x300=0x301 0x300 0x301 CRC

Subindex 27h	Name	Port 0, 1 Data forwarding error Port0/1 data forward error			Settings Come into force	Display parameters	Data structure	-	Data type	Uint16
	accessibility	RO	Can map	-	Related patterns	-	Data range	0-65535.	Factory Settings	0

Subindex 28h	Name	Handling unit and PDI errors Processing unit and PDI error			Set effective	Display parameters	Data structure	-	Data type	Uint16
	accessibility	RO	Can map	-	Related patterns	-	Data range	0 ~ 65535	Factory Settings	0

ESC
MCU
0

Subindex 29h	Name	Ports 0, 1 link lost Port0/1 link loss			Settings in effect	Display parameters	Data structure	-	Data type	Uint16
	accessibility	RO	Can map	-	Related patterns	-	Data range	0-65535.	Factory Settings	0

ESC,

Subindex 2Ah	Name	Host type Select Host set			Set in effect	Shutdown Settings re-energize	Data structure	-	Data type	Uint16
	Accessibility	RW	Can map	-	Related patterns	-	Data range	0-3	Factory Settings	2

Set value	Host type
0	Retain
1	Reserved
2	Omron NJ Series controller
3	AM600, Beckhoff controller

Subindex 2Bh	Name	Sync Error monitoring mode Settings sync error detection			Setting in effect	Stop setting Effective immediately	Data structure	-	Data type	Uint16
	accessibility	RW	Can map	-	Related patterns	-	Data range	0 ~ 1	Factory Settings	0

Er.E08(
)

Subindex 2Ch	Name	Sync mode setting sync mode set		Set in effect	Stop setting With immediate effect	Data structure	-	Data type	Uint16
	Accessibility	RW	Can map -	Related patterns	-	Data range	0-2	Factory Settings	2

Used to set synchronous working mode in the direct step work .

SetPoint	Synchronous working mode	Description
0	Asynchronous	The timing of the drive is asynchronous with the synchronous clock of the upper computer
1	Sync 1	It is suitable for the occasions when the synchronization performance index of the upper computer meets the lus jitter (standard performance index of EtherCAT master station).
2	Sync 2	It is suitable for occasions where the synchronization performance index of the upper computer exceeds lus jitter (standard performance index of EtherCAT master station)

◆ Attention

◆ Synchronous working mode, the synchronization cycle must be 62.5us or an integer multiple of 125us, otherwise the drive will suffer Er.E13(sync cycle setting error)

Subindex 2Dh	name	Synchronization error threshold sync error window		Set effective	The shutdown setting takes effect immediately	Data structure	-	Data type	Uint16
	accessibility	RW	Can map -	Related patterns	-	Data range	0 ~ 4000 (Unit: ns)	Factory Settings	3000

Used to set the jitter range of the sync signal allowed when the drive is operating in sync 1 mode (200C-2Ch=1).

◆ Note:

◆ Sync 1 mode operation mode (200C-2Ch=1), after the ESM enters the OP state, the sync signal jitter range exceeds 200C-2Dh, the drive will occur Er.E15(sync signal error is too large).

Subindex 2Eh	Name	Location cache setting Position control buffer		Set in effect	The shutdown setting takes effect immediately	Data structure	-	Data type	Uint16
	accessibility	RW	Can map -	Related patterns	-	Data range	0 ~ 1	Factory Settings	1

Used to set whether location caching is enabled when the drive is running in periodic sync location mode.

Set Value	Function
0	Disable location caching
1	Enable Location caching

Recommended situations where location caching needs to be enabled:

The synchronization performance of the upper computer does not meet the standard performance specifications of EtherCAT master station;
Ordinary point control occasions.

Subindex 2Fh	Name	CSP Position instruction increment too large threshold		Setting takes effect	Set at any time With immediate effect	Data structure	-	Data type	Uint16
	Accessibility	RW	Can map -	Related patterns	-	Data range	1 ~ 7	Factory Settings	3

Represents the counting threshold when the position instruction increment exceeds the maximum position instruction increment, and alarms E.B01 when the number of counts is greater than this threshold

Subindex 30h	Name	CSP position instruction increment too many times		Setting takes effect	Display parameters	Data structure	-	Data type	Uint16
	accessibility	RO	Can map -	Related patterns	-	Data range	0 ~ 65535	Factory Settings	0

200Dh

index	Name	Accessibility Features Auxiliary Function Parameters			Settings take effect	-	Data structure	ARR	Data type	Uint16
200Dh	accessibility	-	Ability to map	-	Related patterns	-	Data range	O Data range	Factory Settings	OD default
Set accessibility parameters.										

Subindex 00h	Name	Maximum subindex Number Number of Entries			Setting takes effect	-	Data structure	ARR	Data type	Uint8
	accessibility	RO	Can map	NO	Correlation model	-	Data range	-	Factory Settings	20

Subindex 01h	Name	Software reset Operation Software Reset			Setting takes effect	The shutdown setting takes effect immediately	Data structure	-	Data type	Uint16
	Accessibility	RW	Can map	-	Related patterns	-	Data range	0 ~ 1	Factory Settings	0

Software reset operation selection:

Set Value	Function	Remarks
0	No operations	
1	Enable	Enable the program in the drive to reset automatically after software reset without power failure (similar to program reset during power-on)

Conditions for software reset to be executable:

Servo non-enabled state;

No Class 1 non-resettable failure has occurred;

No EEPROM was operated (software reset function is invalid at 200A-04h=1).

Subindex 02h	Name	Fault reset Operation Fault Reset			Setting takes effect	The shutdown setting takes effect immediately	Data structure	-	Data types 0 to 1	Uint16
	accessibility	RW	Can map	-	Related patterns	-	Data range		Factory Settings	0

Fault reset operation selection:

Set value	Function	Remarks
0	None operation	
1	Enable	The first and second kinds can reset the fault, in the servo non-running state, after the cause is removed, you can enable the fault reset function to stop the drive fault display. The third type of warning, which can directly use the fault reset function, has nothing to do with the current operating state of the servo.

◆ Watch out for:

◀ For fault classification, refer to "Chapter 9 Troubleshooting" on page 401. A fault reset only stops the panel from displaying faults and does not indicate that the parameter changes have taken effect.

◀ This function is not valid for non-resetting faults, and it should be used with caution when the cause of the fault has not been removed.

Subindex 03h	Name	Offline inertia identification enabled Load inertia autotuning			Set effective	Run Settings take effect immediately	Data structure	-	Data type	Uint16
	accessibility	RW	Can map	-	Related patterns	-	Data range	0 ~ 1	Factory Settings	0

Panel off-line inertia identification function operation entry. In the parameter display mode, switch to the "200D-03h" function code, press the "SET" key even if the offline inertia identification can be achieved. Please refer to "8.2 Inertia Identification" on page 359 for information on offline inertia identification.

Emergency stop
-
Uint16
06h

RW
-
-
0
1
0

0
1

OFF (2002-05h))

Subindexed Och	Names	JOG commissioning function Jog function		Set effective	-	Data structure	-	Data type	Uint16
	accessibility	RW	Can map	-	Related patterns	-	Data range	-	Factory Settings	-

第 147 页上的“6.1.3 点动运行”

JOG

Subindex 12h	Name	DIDO Forces the input and output to be enabled Forced input and output mode of DI/DO		Set effective	Run Settings take effect immediately	Data structure	-	Data type	Uint16
	accessibility	RW	Can map	-	Related patterns	-	Data range	0-3	Factory Settings	0

DIDO

0

1 I DI
D DO

3
DIDO

4
EtherCAT
DO
DI
EtherCAT
DO
60FEh

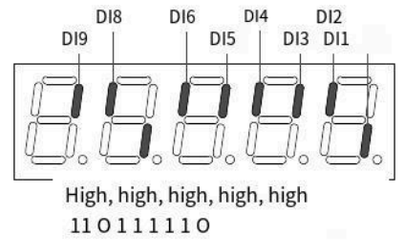
Subindex 13h	Name	DI forces a given input Forced input setting of DI			Set in effect	The running Settings take effect immediately	Data structure	-	Data type	Uint16
	accessibility	RW	Can map	-	Related patterns	-	Data range	0 ~ 447	Factory Settings	447

Set the level logic of the DI function assigned by group 2003h with this parameter when the DI force input is valid (200D-12h=1 or 3).

200D-13h is displayed in hexadecimal on the panel, and when converted to binary, bit(n)=1 means that the level logic of the DI function is high, and bit(n)=0 means that the level logic of the DI function is low.

For example:

200D-13h "parameter value is 0x01BE, converted to binary" 110111110 ", therefore, DI1 is low, DI2 to DI6, DI8 to DI9 ports are high, you can also use 200B-04h to monitor the level status information of 9 DI ports.



DI 2003h DI

Subindex 14h	Name	DO forces the output given Forced output setting of DO			Set in effect	Run Settings With immediate effect	Data structure	-	Data type	Uint16
	Accessibility	RW	Can map	-	Related patterns	-	Data range	0 to 7	Factory Settings	0

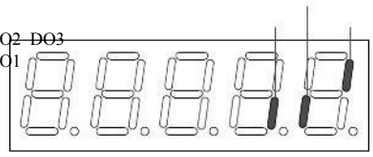
(200D-12h=2
DO
3)
2004h
DO
200D-14h
bit(n)=1
DO
bit(n)=0
DO
.

200D-14h
6
110
DO1
DO
DO2 DO3
DO

2004h
DO
DO
2004h
DO1 DO3

0 -
L
200B-06h

DO2 DO3
DO1



0
0
1

subindex	Name 15h	Absolute encoder reset Enable Absolute encode Fault reset			Setting in effect	Stop setting With immediate effect	Data structure	-	Data type	Uint16
	Accessibility	RW	Can map	-	Related patterns	ALL	Data range	0-2	Factory Settings	0

200D-15h

Set value	Function
0	None operation
1	Reset fault
2	Reset fault and multi-turn data

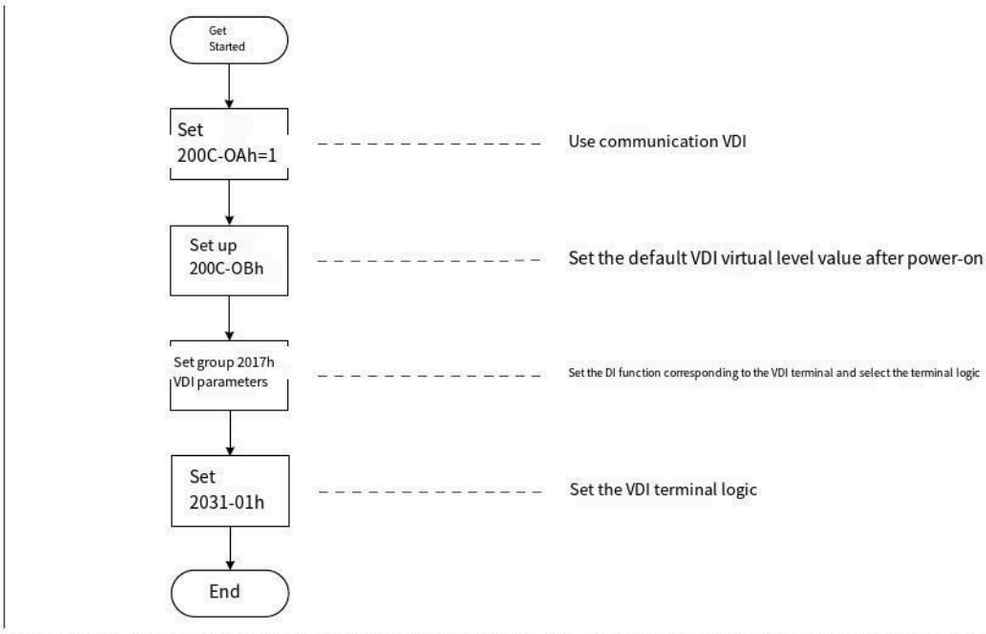
2017h DIDO

Index 2017h	Name	Virtual DIDO function VDI/VDO Parameters			Set in effect	-	Data structure	ARR	Data type	U int 16
	accessibility	-	Ability to map	-	Related patterns	-	Data range	OD data range	Factory Settings	OD default
Set virtual DIDO function parameters.										

subindex 0h	Name	Maximum subindex number Number of Entries			Setting in effect	-	Data structure	ARR	Data type	Uint8
	accessibility	RO	Can map	NO	Correlation model	-	Data range	-	Factory Settings	65

Subindex 01h	Name	VDI1 Terminal function selection VDI1 function selection			Set effective	Run setting Shutdown takes effect	Data structure	-	Data type	Uint 16
	accessibility	RW	Can map	-	Related patterns	-	Data range	0-39	Factory Settings	0

Set the DI function corresponding to VDI1(virtual input terminal 1). Follow these steps to use VDI:



For the DI function, refer to "E.4 DIDO Function Definition "on page 572. For parameter setting, refer to the following table.

VDI1 VDI9
DI
DI
200D-13h

Set value	DI terminal function
0	Do not assign the DI function
2	ALM-RST(fault and warning reset)
3	Gain-sel (GAIN switching)
12	ZCLAMP(zero fixed Enable)
14	P-OT(forward overrange switch)
15	N-OT (Reverse overrange switch)
16	P-CL (positive external torque limit)
17	N-CL(negative external torque limit)
18	JOGCMD+ (positive dot)
19	JOGCMD- (reverse dot)

Set value	DI terminal function
25	ToqDirSel (torque instruction direction setting)
26	SpdDirSel (Speed command direction setting)
27	PosDirSel (position instruction direction setting)
30	There is no
31	HomeSwitch (origin switch)
34	EmergencyStop (emergency shutdown)
35	ClrPosErr (clear position bias)
36	V_LmtSel (internal speed limit source)
38	TouchProbel(Probe 1)
39	TouchProbe2(Probe2)

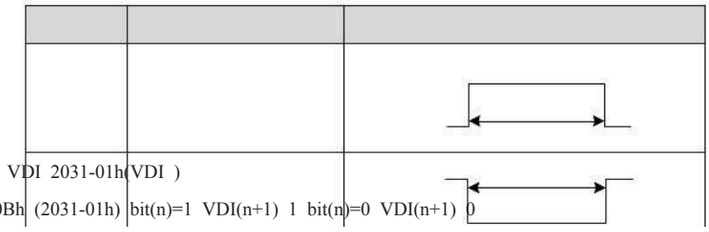
2017-01h

2031-01h

DI Er.130(DI)

Subindex 02h	Name	VDI1 Terminal logic selection VDI1 logic selection	Set effective	Run Settings shutdown takes effect	Data structure -	Data type	Uint 16
accessibility	RW	Can map -	Related patterns -	Data range	0-1	Factory Settings	0

VDI1
DI
VDI1
VDO1
0
1
1ms
1ms
1
0



VDI 200C-0Bh VDI 2031-01h(VDI)

200C-0Bh 2031-01h 200C-0Bh (2031-01h) bit(n)=1 VDI(n+1) 1 bit(n)=0 VDI(n+1) 0

Subindex 03h	Name	VDI2 terminal function selection VDI2 function selection	Set effective	Run Settings shutdown takes effect	Data structure -	Data type	Uint 16
accessibility	RW	Can map -	Related patterns -	Data range	0-39	Factory Settings	0

Subindex 04h	Name	VDI2 Terminal logic selection VDI2 logic selection	Set effective	Run Settings shutdown takes effect	Data structure -	Data type	Uint 16
accessibility	RW	Can map -	Related patterns -	Data range	0 ~ 1	Factory Settings	0

Subindex 05h	Name	VDI3 terminal function selection VDI 3 function selection	Set effective	Run Settings shutdown takes effect	Data structure -	Data type	Uint 16
accessibility	RW	Can map -	Related patterns -	Data range	0-39	Factory Settings	0

Subindex 06h	Name	VDI3 Terminal logic selection VDI3 logic selection	Set effective	Run Settings shutdown takes effect	Data structure -	Data type	Uint 16
accessibility	RW	Can map -	Related patterns -	Data range	0 ~ 1	Factory Settings	0

Subindex 07h	Name	VDI4 terminal function selection VDI4 function selection	Set effective	Run Settings shutdown takes effect	Data structure -	Data type	Uint 16
accessibility	RW	Can map -	Related patterns	-	Data range 0-39	Factory Settings	0

Subindex 08h	Name	VDI4 Terminal logic selection VDI4 logic selection	Set effective	Run Settings shutdown takes effect	Data structure -	Data type	Uint 16
accessibility	RW	Can map -	Related patterns -	Data range	0 ~ 1	Factory Settings	0

Subindex 09h	Name	VDI5 Terminal function selection VDI5 function selection	Set effective	Run Settings shutdown takes effect	Data structure -	Data type	Uint 16
accessibility	RW	Can map -	Related patterns -	Data range	0-39	Factory Settings	0

Subindex OAh	Names	VDI5 Terminal logic selection VDI5 logic selection	Set effective	Run Settings shutdown takes effect	Data structure -	Data type	Uint 16
accessibility	RW	Can map -	Related patterns -	Data range	0 ~ 1	Factory Settings	0

Subindex OBh	Name	VDI6 terminal function selection VDI6 function selection	Set effective	Run Settings shutdown takes effect	Data structure -	Data type	Uint 16
accessibility	RW	Can map -	Related patterns -	Data range	0-39	Factory Settings	0

Subindex Och	Names	VDI6 terminal logical selection VDI6 logic selection	Set in effect	Run Settings shutdown takes effect	Data structure -	Data type	Uint 16
accessibility	RW	Can map -	Related patterns -	Data range	0 ~ 1	Factory Settings	0

VDI7 terminal function Select a sub-index	Name		Data type Uint 16VDI7 function selectionODh		Set Effective Stop Effective data structure		-				
	Accessibility RW		Can map	-	Related patterns	-	Data range	0-39	Factory Settings		
0VDI7 Terminal logic selection											
Run Set subindex	Name				Set in effect		Data structure	-			
Data type Uint 16OEh	VDI7 logic selection										
			Can map	-	Related patterns	-	Data range	0 ~ 1	Factory Settings		
0VDI8 terminal function selection											
Run Set Subindex	Name				Set in effect		Data structure	-			
Data type Uint 16OFh	VDI8 function selection										
			Can map	-	Related patterns	-	Data range	0-39	Factory Settings		
0VDI8 Terminal logic selection											
Run Set subindex	Name				Set in effect		Data structure	-			
Data type Uint 1610h	VDI8 logic selection										
Power-on takes effect accessibility	RW		Can map	-	Related patterns	-	Data range	0 ~ 1	Factory setting	0	
Subindex 11h	Name	VDI9 terminal function selection			Set effective	Run Settings shutdown takes effect	Data structure	-	Data type	Uint 16	
	VDI9 function selection										
	accessibility	RW	Can map	-	Related patterns	-	Data range	0-39	Factory Settings	0	
Subindex 12h	Name	VDI9 Terminal logic selection			Set effective	Run Settings shutdown takes effect	Data structure	-	Data type	Uint 16	
	VDI9 logic selection										
	accessibility	RW	Can map	-	Related patterns	-	Data range	0 ~ 1	Factory Settings	0	
Subindex 13h	Name	VDI10 terminal function selection			Set effective	Run Settings shutdown takes effect	Data structure	-	Data type	Uint 16	
	VDI10 function selection										
	accessibility	RW	Can map	-	Related patterns	-	Data range	0-39	Factory Settings	0	
Subindex 14h	Name	VDI10 Terminal logic selection			Set effective	Run Settings shutdown takes effect	Data structure	-	Data type	Uint 16	
	VDI10 logic selection										
	accessibility	RW	Can map	-	Related patterns	-	Data range	0 ~ 1	Factory Settings	0	
Subindex 15h	Name	VDI11 terminal function selection			Set effective	Run Settings shutdown takes effect	Data structure	-	Data type	Uint 16	
	VDI11 function selection										
	accessibility	RW	Can map	-	Related patterns	-	Data range	0-39	Factory Settings	0	
Subindex 16h	Name	VDI11 Terminal logic selection			Set effective	Run Settings shutdown takes effect	Data structure	-	Data type	Uint 16	
	VDI11 logic selection										
	accessibility	RW	Can map	-	Related patterns	-	Data range	0 ~ 1	Factory Settings	0	
Subindex 17h	Name	VDI12 terminal function selection			Set effective	Run setting Stop takes effect Run setting Stop takes effect Run setting stop takes effect	Data structure	-	Data type	Uint 16	
	VDI12 function selection										
	Accessibility	RW	Can map	-	Related patterns		Data range	0-39	Factory Settings	0	
Subindex 18h	Name	VDI12 Terminal logic selection			Set effective			-	Data Types		
	VDI12 logic selection				Data structure related modes						
	Accessibility	RW	Can map	-		-		0 ~ 1	Factory Settings	0	
Subindex 19h	Name	VDI13 terminal function selection			Set effective		Data range Data structure	-	Data type	Uint 16 Uint 16 Uint 16	
	VDI13 function selection										
	Accessibility	RW	Can map	-	Related patterns	-		0-39	Factory Settings	0	
Subindex 1Ah	Name	VDI13 Terminal logic selection			Setting in effect	Run Settings shutdown takes effect	Data range Data structure	-			
	VDI13 logic selection										
	Accessibility	RW	Can map	-	Related patterns	-	Data range	0 ~ 1	Factory Settings	0	

Subindex 1Bh	Name	VDI14 terminal function selection VDI14 function selection			Set effective	Run Settings shutdown takes effect	Data structure	-	Data type	Uint 16
	accessibility	RW	Can map	-	Related patterns	-	Data range	0-39	Factory Settings	0

Subindex 1Ch	Name	VDI14 Terminal logic selection VDI14 logic selection			Set effective	Run Settings shutdown takes effect	Data structure	-	Data type	Uint 16
	accessibility	RW	Can map	-	Related patterns	-	Data range	0-1	Factory Settings	0

Subindex 1Dh	Name	VDI15 terminal function selection VDI15 function selection			Set effective	Run Settings shutdown takes effect	Data structure	-	Data type	Uint 16
	accessibility	RW	Can map	-	Related patterns	-	Data range	0-39	Factory Settings	0

Subindex 1Eh	Name	VDI15 Terminal logic selection VDI15 logic selection			Set effective	Run Settings shutdown takes effect	Data structure	-	Data type	Uint 16
	accessibility	RW	Can map	-	Related patterns	-	Data range	0-1	Factory Settings	0

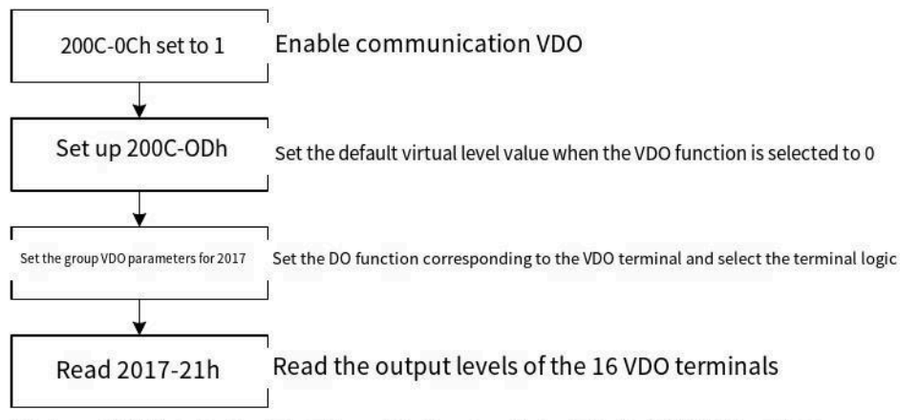
Subindex 1Fh	Name	VDI16 terminal function selection VDI16 function selection			Set effective	Run Settings shutdown takes effect	Data structure	-	Data type	Uint 16
	accessibility	RW	Can it be mapped	-	Related patterns	-	Data range	0-39	Factory Settings	0

Subindex 20h	Name	VDI16 Terminal logic selection VDI16 logic selection			Set effective	Run Settings shutdown takes effect	Data structure	-	Data type	Uint 16
	accessibility	RW	Can map	-	Related patterns	-	Data range	0-1	Factory Settings	0

Subindex 21h	Name	VDO virtual level VDO virtual Level			Setting takes effect	-	Data structure	-	Data type	Uint 16
	accessibility	RO	Can map	-	Related patterns	-	Data range	0 ~ 65535	Factory Settings	0

Read the output logic of the VDO(Virtual output terminal).

Read the output logic of the VDO(Virtual output terminal). 2017-21h is hexadecimal on the panel, and when converted to binary, bit(n)=1 of 2017-21h means that the output logic of VDO (n+1) terminal is "1", and bit(n)=0 means that the output logic of VDO (n+1) terminal is "0". Use VDO by following these steps:



It is recommended that each VDO terminal logic level be set to the opposite logic to the 200C-ODh setting.

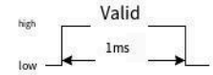
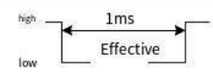
Subindex 22h	Name	VDO1 terminal function Select VDO1 function selection		Set in effect	Run Settings Shutdown effect	Data structure	-	Data type	Uint 16
	Accessibility	RW	Can map	-	Related patterns	-	Data range	0-20	Factory Settings	0

VDO1 DO DO

Set value	DO function name
0	DO function not assigned
1	S-RDY: Servo ready
2	TGON: Motor rotation output
3	ZERO: Zero speed
4	V-CMP: Consistent speed
5	COIN: Positioning complete
7	C-LT: Torque limit
8	V-LT: Speed limited
9	BK: Hold the lock
10	WARN: Warnings
11	ALM: Fault
12	ALMO1: Output 3-digit alarm code
13	ALMO2: Output 3-digit alarm code
14	ALMO3: Output 3-digit alarm code
18	ToqReach: Torque arrives
19	V-Arr: Speed to output
20	AnglntRdy; Initial Angle identification complete

DO

Subindex 23h	Name	VDO1 terminal logic level selection VDO1 logic selection		Set effective	Run Settings Shutdown in effect	Data structure	-	Data type	Uint 16
	accessibility	RW	Can map	-	Related patterns	-	Data range	0 ~ 1	Factory Settings	0

Set value	VDO1 terminal logic	Remarks
0	Output 1 when valid	
1	Output 0 when valid	

Subindex 24h	Name	VDO2 terminal function selection VDO2 function selection		Settings take effect	Run Settings Shutdown effect	Data structure	-	Data type	Uint 16
	accessibility	RW	Can map	-	Related patterns	-	Data range	0-20	Factory Settings	0

Subindex 25h	Name	VDO2 terminal logic level selection VDO2 logic selection		Set effective	Run Settings shutdown takes effect	Data structure	-	Data type	Uint 16
	accessibility	RW	Can map	-	Related patterns	-	Data range	0 ~ 1	Factory Settings	0

Subindex 26h	Name	VDO3 terminal function selection VDO3 function selection		Set effective	Run Settings shutdown takes effect	Data structure	-	Data type	Uint 16
	accessibility	RW	Can map	-	Related patterns	-	Data range	0-20	Factory Settings	0

Run Set subindex	name	VDO3 terminal logic level selection		Setting takes effect		Data structure	-				
Data type Uint 1627h		VDO3 logic selection									
		Can map	-	Related patterns	-	Data range	0 ~ 1	Factory Settings			
0VDO4 terminal function selection											
Run Set Subindex	Name			Set in effect		Data structure	-				
Data type Uint 16VDO4 function selection28h											
Stop in effect Accessibility RW											
		Can map	-	Related patterns	-	Data range	0-20	Factory Settings			
0VDO4 Terminal logic level selection											
Run Set subindex	Name			Set in effect		Data structure	-				
Shutdown effective 29h		Data type Uint 16VDO4 logic selection									
Accessibility RW											
		Can map	-	Related patterns	-	Data range	0 ~ 1	Factory Settings			
0VDO5 terminal function selection											
Run Set Subindex	Name			Set in effect		Data structure	-				
Data type Uint 16VDO5 effect accessibility 2Ah											
Stop takes effect	RW	Can map	-	Related patterns	-	Data range	0-20	Factory Settings	0		
Subindex 2Bh	Name	VDO5 terminal logic level selection		Set effective	Run Settings shutdown takes effect	Data structure	-	Data type	Uint 16		
		VDO5 logic selection									
accessibility	RW	Can map	-	Related patterns	-	Data range	0 ~ 1	Factory Settings	0		
Subindex 2Ch	Name	VDO6 terminal function selection		Set effective	Run Settings shutdown takes effect	Data structure	-	Data type	Uint 16		
		VDO6 function selection									
accessibility	RW	Can map	-	Related patterns	-	Data range	0-20	Factory Settings	0		
Subindex 2Dh	Name	VDO6 terminal logic level selection		Set effective	Run Settings shutdown takes effect	Data structure	-	Data type	Uint 16		
		VDO6 logic selection									
accessibility	RW	Can map	-	Related patterns	-	Data range	0 ~ 1	Factory Settings	0		
Subindex 2Eh	Name	VDO7 terminal function selection		Set effective	Run Settings shutdown takes effect	Data structure	-	Data type	Uint 16		
		VDO7 function selection									
accessibility	RW	Can map	-	Related patterns	-	Data range	0-20	Factory Settings	0		
Subindex 2Fh	Name	VDO7 terminal logic level selection		Set effective	Shutdown takes effect	Data structure	-	Data type	Uint 16		
		VDO7 logic selection									
accessibility	RW	Can map	-	Related patterns	-	Data range	0 ~ 1	Factory Settings	0		
Subindex 30h	Name	VDO8 terminal function selection		Set effective	Run Settings shutdown takes effect	Data structure	-	Data type	Uint 16		
		VDO8 function selection									
accessibility	RW	Can map	-	Related patterns	-	Data range	0-20	Factory Settings	0		
Subindex 31h	Name	VDO8 terminal logic level selection		Set effective	Run Settings shutdown takes effect	Data structure	-	Data type	Uint 16		
		VDO8 logic selection									
accessibility	RW	Can map	-	Related patterns	-	Data range	0 ~ 1	Factory Settings	0		
Subindex 32h	Name	VDO9 terminal function selection		Set effective	Run Settings shutdown takes effect	Data structure	-	Data type	Uint 16		
		VDO9 function selection									
accessibility	RW	Can map	-	Related patterns	-	Data range	0-20	Factory	0		
Subindex 33h	Name	VDO9 terminal logic level selection		Set effective	Run Settings shutdown takes effect	Data structure	-	set data type			
		VDO9 logic selection									
Accessibility	RW	Can map	-	Related patterns	-	Data range	0 ~ 1	Factory Settings	Uint 16	0	Uint 16
Subindex 34h	Name	VDO10 terminal function Select		Setting in effect	Run Settings	Data structure	-	Data type			
	accessibility	VDO10 function selection			停机生效						
	RW	Can map	-	Related patterns	-	Data range	0-20	Factory Settings	0		

Run Set subindex	Name	VDO10 terminal logic level selection VDO10 logic selection		Set in effect		Data structure	-		
Data type Uint 1635h	Downtime takes effect accessibility RW		Can map	-	Related patterns	-	Data range	0 ~ 1	0

Factory Settings VDO11 terminal function selection

Run Set subindex	Name			Set in effect		Data structure	-		
Data type Uint 16VDO11 function selection36h	Stop in effect Accessibility RW		Can map	-	Related patterns	-	Data range	0-20	0

Factory set VDO11 terminal logic level selection

Run Set subindex	Name	VDO11 logic selection		Set in effect		Data structure	-		
Data type Uint 1637h	Downtime takes effect accessibility RW		Can map	-	Related patterns	-	Data range	0 ~ 1	Factory Settings 0

Subindex 38h	Name	VDO12 terminal function selection VDO12 function selection		Set effective	Run Settings shutdown takes effect	Data structure	-	Data type	Uint 16
	accessibility	RW	Can map	-	Related patterns	-	Data range	0-20	Factory Settings 0

Subindex	Name	VDO12 terminal logic level selection VDO12 logic selection		Set effective	Run Settings shutdown takes effect	Data structure	-	Data type	Uint 16
39h	accessibility	RW	Can map	-	Related patterns	-	Data range	0 ~ 1	Factory Settings 0

Subindex Gemah	Name	VDO13 terminal function selection VDO13 function selection		Set effective	Run Settings shutdown takes effect	Data structure	-	Data type	Uint 16
	accessibility	RW	Can map	-	Related patterns	-	Data range	0-20	Factory Settings 0

Subindex 3Bh	Name	VDO13 terminal logic level selection VDO13 logic selection		Set effective	Run Settings shutdown takes effect	Data structure	-	Data type	Uint 16
	accessibility	RW	Can map	-	Related patterns	-	Data range	0-1	Factory Settings 0

Subindex 3Ch	Name	VDO14 terminal function selection VDO14 function selection		Set effective	Run Settings shutdown takes effect	Data structure	-	Data type	Uint 16
	accessibility	RW	Can map	-	Related patterns	-	Data range	0-20	Factory Settings 0

Subindex 3Dh	Name	VDO14 terminal logic level selection VDO14 logic selection		Set effective	Run Settings shutdown takes effect	Data structure	-	Data type	Uint 16
	accessibility	RW	Can map	-	Related patterns	-	Data range	0 ~ 1	Factory Settings 0

Subindex Gemeh	Name	VDO15 terminal function selection VDO15 function selection		Set effective	Run Settings shutdown takes effect	Data structure	-	Data type	Uint 16
	accessibility	RW	Can map	-	Related patterns	-	Data range	0-20	Factory Settings 0

Subindex 3Fh	Name	VDO15 terminal logic level selection VDO15 logic selection		Set effective	Run Settings shutdown takes effect	Data structure	-	Data type	Uint 16
	accessibility	RW	Can map	-	Related patterns	-	Data range	0-1	Factory Settings 0

Subindex 40h	Name	VDO16 terminal function selection VDO16 function selection		Set effective	Run Settings shutdown takes effect	Data structure	-	Data type	Uint 16
	accessibility	RW	Can map	-	Related patterns	-	Data range	0-20	Factory Settings 0

Subindex 41h	Name	VDO16 terminal logic level selection VDO16 logic selection		Set effective	Run Settings shutdown takes effect	Data structure	-	Data type	Uint 16
	accessibility	RW	Can map	-	Related patterns	-	Data range	0-1	Factory Settings 0

2030h

Index 2030h	Names	Servo Related Variables Read via Communication			Set effective	-	Data structure	ARR	Data type	Uint 16
	accessibility	-	Ability to map	-	Related patterns	-	Data Range OD Data range		Factory set OD defaults	
Communication reads servo-dependent variables										

Subindex 00h	Name	Maximum subindex Number Number of Entries			Setting takes effect	-	Data structure	ARR	Data type factory	Uint 8
	accessibility	RO	Can map	NO	Correlation model	-	Data range	-	Settings	04

Subindex 01h	Name	Communication read Servo state read viacommunication			Setting in effect	-	Data structure	-	Data type	Uint 16
	accessibility	RO	Can map	-	Related patterns	ALL	Data range	0-65535.	Factory Settings	0

Communication read servo operating status.

2030-01h is a hexadecimal number, which is not visible on the panel. When the communication is read, it must be converted into binary. Different bits represent different meanings.

bit bits	Servo state	Remarks
bito	Servo ready	This bit is used to determine if the servo main circuit DC voltage is ready to put the servo drive in operational condition. 0- Servo not ready 1- Servo is ready
bit1~bit11	reserve	-
bit12~bit13	Servo Operating status	This bit is used to determine the servo operating status. 00- Servo is not ready (main circuit DC bus voltage is not correctly established) 01- Servo ready (the main circuit DC bus voltage is correctly established, and the driver is in operational condition) 10- Servo running (servo enable valid) 11- Servo failure (the servo has type I and type II failures)
bit14~bit15	reserve	-

Subindex 02h	Name	Communication Read DO function Status 1 DO functionstate 1 read via communication			Set effective	-	Data structure	-	Data type	Uint16
	accessibility	RO	Can map	-	Related patterns	ALL	Data range	0 ~ 65535	Factory Settings	0

Communication Read the status of DO function 1 through DO function 16 in the order of the DO function list. 2030-02h is a hexadecimal number that is not visible on the panel. When the communication is read, it must be converted to binary.

Subindex 03h	Name	Communication Read DO function Status 2 DO function state 2 read via communication			Set effective	-	Data structure	-	Data type	Uint16
	accessibility	RO	Can map	-	Related patterns	ALL	Data range	0-65535.	Factory Settings	0

Communication Read the status of DO function 17 through DO function 20 in the order of the DO function list. 2030-02h is a hexadecimal number that is not visible on the panel. When the communication is read, it must be converted to binary.

2031h

Index 2031h	Names	Servo Related Variables Set via Communication			Setting in effect	-	Data structure	ARR	The data type is Uint16	
	Accessibility	-	Ability to map	-	Related patterns	-	Data range	OD data range	Factory Settings	OD default
	Communicate the given servo-dependent variable									

Subindex 00h	Name	Maximum subindex Number Number of Entries			Setting takes effect	-	Data structure	ARR	Data type Uint8	
	accessibility	RO	Can map	NO	Correlation model	-	Data range	-	Factory Settings	5

Subindex 01h	Name	Communication set VDI virtual level VDI virtuallevel set via communication			Set effective	Run Settings take effect immediately	Data structure	-	Data type Uint16	
	Accessibility	RW	Can map	-	Related patterns	ALL	Data range	0-65535.	Factory Settings	0

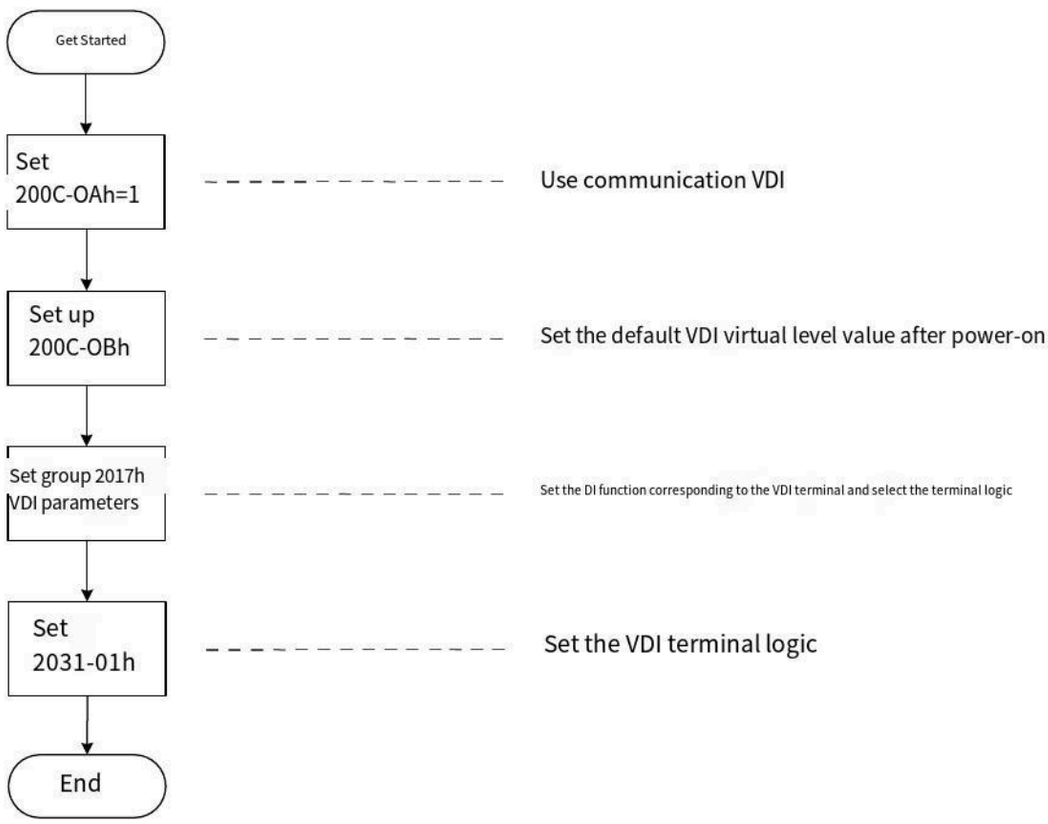
bit(n)=0 VDI(n+1) 0

VDI 2017h

When using the VDI function, set the DI function level corresponding to VDI1 to VDI16.

2031-01h is a decimal number that is not visible on the panel and can only be set by communication.

Use VDI by following these steps:

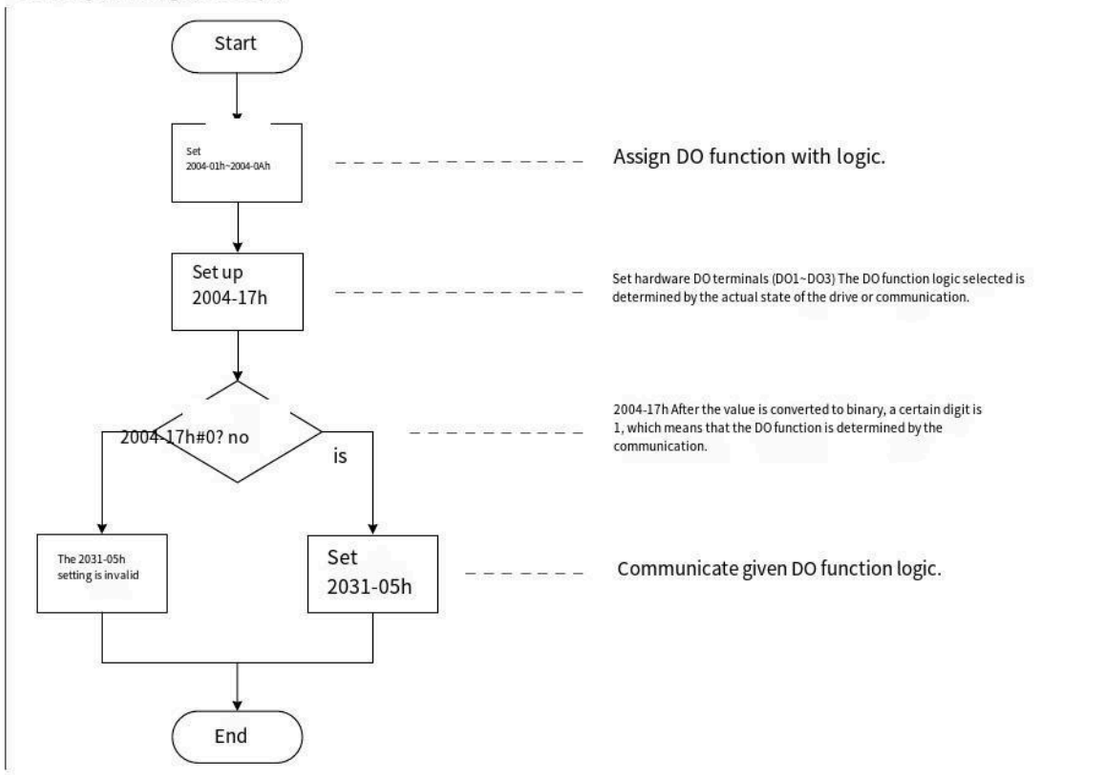


For the first power-on, the VDI terminal logic is determined by 200C-OBh (the default VDI virtual level value after power-on). After that, the VDI terminal logic is determined by 2031-01h. 200C-0Bh is displayed as decimal on the panel. When converted to binary, bit(n)=1 of 2031-01h(200C-0Bh) indicates that VDI(n+1) terminal logic is "1".

Subindex 05h	Name	Communicate given DO output status DO state set via communication			Set effective	Run Settings take effect immediately	Data structure	-	Data type	Uint16
	accessibility	RW	Can map	-	Related patterns	ALL	Data range	0 to 7	Factory Settings	0

When using the DO function, communicate the given DO output status according to the Settings of the function code 2004-17h. 2031-05h is a decimal number that is not visible on the panel and can only be given by communication.

Use DO by following these steps:



bit(n)=1 in 2031-05h means that the DO(n+1) function logic assigned by group 2004h is valid, and bit(n)=0 means that the DO(n+1) function logic is invalid.

203 h

Index 203Fh	Names	home trouble code Manufacturor Error Code			Set effective	-	Data structure	VAR	Data type	Uint32
	accessibility	RO	Can map	TPDO	Be related to Patterns	-	Data Range	0 - (232-1)	Out Settings	-

203Fh 16 16

7.4 6000h

Index 603Fh	Name	Error code Error Code			Set in effect	-	Data structure	VAR	Data type	Uint16
	Accessibility	RO	Can map	TPDO	Correlation model	ALL	Data range	0 ~ 65535	Factory Settings	-

DSP402
603Fh
DS402

603Fh
65280

603F

203Fh 203Fh Uint32 16 16

Index	Name	Control word control word			Set in effect	Run Settings Shutdown effect	Data structure	VAR	Data type	Uint16
6040h	accessibility	RW	Can map	RPDO	Correlation model	ALL	Data range	0 ~ 65535	Factory Settings	0

Set control instructions: bit

bit	bit0 bit3 bit7 name		Description CiA402
0	You can turn on the servo to run	switch on	1- valid, 0- invalid
1	Turn on the main circuit electricity	enable voltage	1- valid, 0- invalid
2	bit4 bit6 ( ) Quick stop bit9	quick stop	0- valid, 1- invalid
3	Servo run	enable operation	1- valid, 0- invalid
4 to 6	Run mode related	operation mode specific	Related to each servo operation mode.
7	Failure reset	fault reset	For resettable faults and warnings, performing the fault reset function bit7 rising edge is effective; bit7 remains at 1, and other control instructions are invalid.
8	Pause	halt	For the pause modes in each mode, query object dictionary 605Dh.
9	Run mode related	operation mode specific	Related to each servo operation mode.
10	Reserved	reverse	To be defined
11 ~ 15	Manufacturer custom	manufacturer-specific	Manufacturer's custom

index	Name	status word Status Word			Setting takes effect	-	Data structure	VAR	Data type	Uint16
6041h	accessibility	RO	Can map	TPDO	Correlation model	ALL	Data range	0~xFFFF	Factory setting	0

bit	name		Description
0	Servo ready	ready to switch on	1- valid, 0- invalid
1	You can turn on the servo to run	switch on	1- valid, 0- invalid
2	Servo operation	operation enabled	1- valid, 0- invalid
3	Breakdown	fault	1- valid, 0- invalid
4	The main loop is electrically connected	voltage enabled	1- valid, 0- invalid
5	Quick stop	quick stop	0- valid, 1- invalid
6	Servo not operational	switch on disabled	1- valid, 0- invalid
7	Warnings	warning	1- valid, 0- invalid
8	Manufacturer custom	manufacturer-specific	No function is defined
9	Remote control	remote	1- Valid, control word in effect 0- invalid
10	Target arrival	target reach	1- valid, 0- invalid
11	Internal restrictions in effect	internal limit active	1- valid, 0- invalid
12 ~ 13	Run mode related	operation mode specific	Related to each servo operation mode.
14	Home Custom	manufacturer-specific	Undefined function
15	Origin found	Home Find	1- valid, 0- invalid

Set point (binary)	Description
xxxx xxxx x0xx 0000	Not ready to switch on Not ready to switch on
xxxx xxxx x1xx 0000	Switch on disabled
xxxx xxxx x01x 0001	Ready to switch on (Ready to switch on)
xxxx xxxx x01x 0011	Switched on
xxxx xxxx x01x 0111 xxxx	Operation enabled (Operation enabled)
xxxx x00x 0111	Quick stop active (Quick stop active)
xxxx xxxx x0xx 1111	Fault reaction active (Fault reaction active)
xxxx xxxx x0xx 1000	Fault (Fault)

:

bit0 bit9 6040h bit12 bit13 ( ) bit10 bit11 bit15

Index	Name	Quick stop mode selection Quick stop option code			Set in effect	Run Settings Shutdown effect	Data structure	VAR	Data type	INT16
605Ah	accessibility	RW	Can map	NO	Correlation model	ALL	Data range	0 to 7	Factory Settings	2

PP

Set value	Shutdown mode
0	Free stop, keep free running state
1	Stop at 6084h ramp and keep free running
2	Stop at 6085h ramp and keep free running
3	Stop with 2007-10h emergency stop torque and keep the free running state
4	NA
5	Stop at 6084h ramp, keeping position locked
6	Stop at 6085h ramp, keeping position locked
7	Stop with the 2007-10h emergency stop torque and keep the position locked

CSP

Set value	Shutdown mode
0	Free stop, keep free running state
1	Stop with 2007-10h emergency stop torque and keep the free running state
2	
3	
4	NA
5	Stop with the 2007-10h emergency stop torque and keep the position locked
6	
7	

CSV/PV/HM

Set value	Shutdown mode
0	Free stop, keep free running state
1	Stop at 6084h(HM: 609Ah) ramp and keep in free run
2	Stop at 6085h ramp and keep free running
3	Stop the scram torque and keep the free running state
4	NA
5	Stop at 6084h(HM: 609Ah) ramp, keeping position locked
6	Stop at 6085h ramp, keeping position locked
7	Stop with the 2007-10h emergency stop torque and keep the position locked

CST/PT

Set value	Shutdown mode
0	Free stop, keep free running state
1	Stop at 6087h ramp and keep free running
2	
3	Free stop, keep free running state
4	NA
5	Stop at 6087h ramp, keeping position locked
6	
7	Free stop and keep position locked

Index	Name	Pause mode selection Halt option code			Set in effect	Run Settings Shutdown effect	Data structure	VAR	Data type	INT16
605Dh	accessibility	RW	Can map	NO	Correlation model	ALL	Data range	1-3	Factory Settings	1

PP

Set value	Shutdown mode
1	Stop at 6084h ramp, keeping position locked
2	Stop at 6085h ramp, keeping position locked
3	Stop with 2007-10h emergency stop torque and keep the free running state

CSP

Set value	Shutdown mode
1	Stop with the 2007-10h emergency stop torque and keep the position locked
2	
3	

PV/CSV/HM

Set value	Shutdown mode
1	Stop at 6084h(HM: 609Ah) ramp, keeping position locked
2	Stop at 6085h ramp, keeping position locked
3	Stop with the 2007-10h emergency stop torque and keep the position locked

PT/CST

Set value	Shutdown mode
1	Stop at 6087h ramp, keeping position locked
2	
3	Free stop and keep position locked

Index	Name	Pattern selection Modes of operation			Set effective	Run Settings Shutdown takes effect	Data structure	VAR	Data type	int 8
6060h	accessibility	RW	Can map	RPDO	Correlation model	ALL	Data range	0 to 10	Factory Settings	0

SDO
SDO
Select the servo running mode:
PDO

Set Value	Servo mode	
0	NA	reserve
1	Outline Position Pattern (pp)	
2	NA	reserve
3	Contour Speed Mode (pv)	
4	Contour Torque Pattern (pt)	Reference
5	NA	
6	Back to Zero mode (hm)	
7	Interpolation mode (ip)	Unsupported
8	Cycle Sync Position Mode (csp)	
9	Cycle Sync Speed Mode (csv)	
10	Periodic Synchronous Torque Mode (cst)	

Index	Name	Run mode display Modes of operation display			Set in effect	-	Data structure	VAR	Data type	int 8
6061h	accessibility	RO	Can map	TPDO	Correlation model	ALL	Data range	0 ~ 10	Factory Settings	0

Display the current operating mode of the servo:

Set value	Servo Mode	
6065h 4294967295		
0	NA	reserve
1	Outline Position Pattern (pp)	
2	NA	reserve
3	Contour Speed Mode (pv)	
4	Contour Torque Mode (pt)	
5	NA	reserve
6	Back to zero mode (hm)	
7	Interpolation mode (ip)	Unsupported
8	Cycle Sync Position Mode (csp)	
9	Cycle Sync Speed Mode (csv)	
10	Periodic Synchronous Torque Mode (cst)	

index	Name	Location instructions Position demand value			Setting in effect	-	Data structure	VAR	Data type	Uint32
6062h	accessibility	RO	Can map	TPDO	Related modes PP HM CSP		Data range	- (Units: refers Ream units)	Factory setting	0

Reflect the position command (command unit) that has been entered when the servo is enabled.

index	name	Location Feedback Position actual value*			Setting in effect	-	Data structure	VAR	Data type	Uint32
6063h	accessibility	RO	Can map	TPDO	Correlation model	ALL	Data range	- (Units: eds Coder unit)	Factory Settings	0

Reflects the absolute position of the motor, encoder unit.

index	Name	Position feedback Position actual value			Set in effect	-	Data structure	VAR	Data type	Uint32
6064h	accessibility	RO	Can map	TPDO	Correlation model	ALL	Data range	- (Units: refers Ream units)	Factory setting	0

Reflect real-time user absolute location feedback.

Position feedback 6064h x gear ratio (6091h) = Position feedback 6063h

Index	name	Excessive position deviation threshold Following error window			Set in effect	Shutdown effect	Data structure	VAR	Data type	Uint32
6065h	Accessibility	RW	Can map	RPDO	Correlation model	PP HM CSP| Range of data		0 - (232-1) (unit of instruction)	Factory Settings	20-bit electrical The machine is: 3145728 23-bit electricity The machine is: 25165824

Set the position deviation too large threshold (instruction unit).

Er.B00(excessive position deviation fault) occurs when the position deviation (instruction units) exceeds ±6065h.

Index	Name	The location reached the threshold. Procedure Position window			Set in effect	Run Settings With immediate effect	Data structure	VAR	Data type	Uint 32
6067h	accessibility	RW	Can map	RPDO	Correlation model	PP HM CSP	Data range	0 - (232-1)	Factory Settings	734

Set the threshold at which the location reaches. Units for 6067h can be set by 2005-3Eh and default to instruction units.

When the position deviation is within ±6067h, and the time reaches 6068h, it is considered that the position has arrived. In the position class mode, the bit10 of the status word 6041 =1 in the position class mode, when the servo is enabled, this flag bit is meaningful; Otherwise, it is meaningless.

index	name	Location arrival time window Position window time			Setting in effect	Run Settings take effect immediately	Data structure	VAR	Data type	Uint 16
6068h	Accessibility	RW	Can map	RPDO	Correlation model	PP HM CSP	data range	0 ~ 65535 (Unit: ms)	Factory Settings	x10

Set the time window when the decision position is valid. The difference between the user's position instruction 6062 and the user's actual position feedback 6064 is within ±6067, and when the time reaches 6068, the position is considered to have arrived. In the contour position mode, the bit10 of the status word 6041 =1

When the contour position mode and servo enable are effective, this flag bit is meaningful; Otherwise meaningless.

Index	Names	Speed feedback Velocity actual value			Setting in effect	-	Data structure	VAR	Data type	int 32
606Ch	accessibility	RO	Can map	TPDO	Correlation model	ALL	Data range	(Units: instruction units /s)	Factory Settings	-

Reflect the user's actual speed feedback value.

Index	Names	Velocity reaches the threshold Velocity window			Setting takes effect	Run Settings shutdown takes effect	Data structure	VAR	Data type	Uint 16
606Dh	accessibility	RW	Can map	RPDO	Correlation model	PV CSV	data range	0 to 65535 (unit: rpm)	Factory Settings	10

Set the threshold at which the speed reaches.

The difference between the target speed 60FF(converted into motor speed /rpm) and the actual speed of the motor is within ±606D, and when the time reaches 606E, it is considered that the speed has reached, the bit10 of the status word 6041 =1, and the speed has reached the DO function is effective.

When the servo function is effective in the contour speed mode and the cycle synchronous speed mode, the flag bit is meaningful; Otherwise, it is meaningless.

Index	Names	Velocity window time			Setting takes effect	Run Settings shutdown takes effect	Data structure	VAR	Data type	Uint 16
606Eh	accessibility	RW	Can map	RPDO	Correlation model	PV CSV	Data range	0-65535 (in ms)	Factory Settings	0

Set the threshold at which the speed reaches. The difference between the target speed 60FF(converted into motor speed /rpm) and the actual speed of the motor is within ±606D, and when the time reaches 606E, it is considered that the speed has reached, the bit10 of the status word 6041 =1, and the speed has reached the DO function is effective.

When the servo function is effective in the contour speed mode and the cycle synchronous speed mode, the flag bit is meaningful; Otherwise, it is meaningless.

Index	Names	Target torque Target Torque			Set effective	Run Settings shutdown takes effect	Data structure	VAR	Data type	int16
6071h	Accessibility	RW	Can map	RPDO	Correlation model	PT CST	data range	-4000~4000(unit: 0.1%)	Factory setting	3500

Set the servo target torque in contour torque mode versus periodic synchronous torque mode. 100.0% corresponds to 1 times the rated torque of the motor.

Index	Name	Maximum torque Max Torque		Setting in effect	Run Settings Shutdown effect	Data structure	VAR	Data type	Uint16
6072h	accessibility	RW	Can map RPDO	Correlation model	ALL	Data range	0-4000. (Unit: 0.1%)	Factory Settings	3500

According to the Settings of 2007-08h, the final torque limit value is determined.

Index	Name	Target torque Torque Demand Value		Set effective	-	Data structure	VAR	Data type	int16
6074h	accessibility	RO	Can map TPDO	Correlation model	ALL	Data range	(Unit: 0.1%)	Factory Settings	-

Display servo operating state, servo internal torque instruction. 100.0% corresponds to 1 times the rated motor torque.

Index	Names	Torque feedback Torque ActualValue		Setting in effect	-	Data structure	VAR	Data type factory set	int16
6077h	accessibility	RO	Can map TPDO	Correlation model	ALL	Data range	(Unit: 0.1%)		-

Displays servo internal torque feedback.
100.0% corresponds to 1 times the rated torque of the motor.

Index	Names	Target Position. Target position		Set to take effect	Run Settings shutdown takes effect	Data structure	VAR	Data type	int32
607Ah	accessibility	RW	Can map RPDO	Correlation model	PP CSP	Data range	-231-(231-1) (instruction unit)	Factory Settings	0

Set the servo target position in Contour position mode versus cycle Sync position mode.

Index	Names	Origin offset home offset		Set to take effect	Run Settings shutdown takes effect	Data structure	VAR	Data type	int32
607Ch	accessibility	RW	Can map RPDO	Correlation model	HM	Data range	-231-(231-1) (instruction unit)	Factory Settings	0

Set origin back to zero Mechanical zero deviates from the physical position of the motor origin.

Origin offset effective condition: this power-on operation, the origin return to zero operation has been completed, the status word 6041 bit15=1

The effect of origin bias:

According to 60E6h determine the user's current position after the origin is returned to zero.

If 607Ch is incorrectly set outside 607Dh (software absolute position limit), Er.D10 (origin bias setting error) will occur.

Index	Names	software position limit		Set to take effect	-	Data structure	VAR	Data type	int32
607Dh	accessibility	-	Ability to map YES	Correlation model	ALL	Data range	OD data range	Factory set	OD defaults

Set the minimum and maximum value of the absolute location limit of the software.

Minimum software Absolute location limit = (607D-1h)

Max Software Absolute Location limit = (607D-2h)

The software internal position limit is to judge the absolute position. When the servo does not perform the origin regression operation, the software internal position limit is meaningless.

The software absolute position limit setting takes effect: set by object dictionary 0x200A-02h:

0 - There is no software absolute location limit

1 - Absolute software location takes effect

2 - The absolute position of the software takes effect after the point is returned to zero. After the origin return to zero operation is completed during this power-on operation, the absolute position of the software takes effect when bit15 of the status word 6041 =1.

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Subindex 0h	Name	Number of subindexes for software absolute location limit	set effective	-	Data structure	-	Data type	Uint8
	accessibility	RO	Can map	NO	Correlation model	-	Data range	-	Factory Settings	2

Subindex 1h	Name	Minimum software absolute location limit Min position limit	Setting in effect	Run Settings shutdown takes effect	Data structure	-	Data type	int32
	Accessibility	RW	Can map	RPDO	Correlation model	ALL	Data range	-231-(231-1) (instruction unit)	factory set	- 231.

Set the minimum software absolute position limit, which refers to the position relative to the mechanical zero. Minimum software absolute position limit = (607D-1h)

Sub-index 2h	Name	Maximum software absolute location limit Max position limit	Setting in effect	Run Settings shutdown takes effect	Data structure	-	Data Types	int32
	accessibility	RW	Can map	RPDO	Correlation model	ALL	Data range	-231-(231-1) (instruction unit)	Factory Settings	231-1

Set the maximum software absolute position limit, which refers to the position relative to the mechanical zero. Maximum software absolute position limit = (607D-2h)

Index 607Eh	Names	Command polarity Polarity	Set effective	Run Settings Shutdown takes effect	Data structure	VAR	Data type	Uint8
	accessibility	RW	Can map	RPDO	Correlation model	ALL	Data range	00~FF	Factory setting	00

Set polarity of position command, speed command, torque command.

Bit	Description
0 to 4	Undefined
5	Torque instruction polarity: 0: Keep the current value 1: Instruction x (-1) PT: invert target torque 6071h CSP CSV: invert the torque feedforward 60B2 CST: invert the torque instruction (6071h+60B2h)
6	Speed command polarity 0: Keep the current value 1: Instruction x (-1) PV: invert the target torque 6071h CSP: invert the speed feedforward 60B1 CSV: invert the speed instruction (60FFh+60B1h)
7	Position instruction polarity 0: Keep the current value 1: Instruction x (-1) PP: invert the target position 607Ah CSP: invert the position instruction (607Ah+60B0h)

Index 607Fh	Name	Maximum profile speed Max profile velocity	Set effective	Run Setting Shutdown in effect	Data structure	VAR	Data type	Uint32
	accessibilit$_{raw}$	RW	Can map	RPDO	Correlation model	0-(232-1)ALL	Data range	(Instruction unit /s)	Factory Settings	10; 104857600

Set the user's maxim Line speed.
set value takes effect when the slave station speed instruction changes.

Index 6081h	Names	Profile velocity profile velocity	Set in effect	Run Settings shutdown takes effect	Data structure	VAR0-(232-1)(instruction units /s)	Data type	Uint32
	accessibility	RW Can map RPDO	Correlation model	PP	Data range		Factory Settings	100

(rpm)=
6081h
6091h
6
0

pro_le_acceleration
VAR
Uint32

6083h
RW
RPDO
PP PV
0 (2³²-1)
(
/s²)
100

0 1

1

index 6084h	Name	Contour deceleration profile deceleration	Set effective	Run Settings Shutdown in effect	Data structure	VAR 0-(232-1)	Data type	Uint32
	accessibility	RW Can map RPDO	Correlation model	PP PV CSP CSV	Data range	(instruction unit /s2)	Factory Settings	100

PP CSV PV 605A 1 5 PP CSV PV 605D 1

0 1

Index 6085h	Names	Quick stop to reduce speed quick stop deceleration	Setting in effect	Run Settings Stop effective PP PV HMCSP CSV	Data structure	VAR	Data type	Uint32
	accessibility	RW Can map YES	Correlation model		Data range	0-(232-1) (instruction unit /s2)	Factory Settings	100

PP CSV Quick Stop Mode selection (605A) in PV HM mode equals 2 or 6, deceleration of ramp stop when the quick stop command is in effect. The Pause mode selection (605D) in PP CSV PV HM mode is equal to 2, the deceleration of ramp stop when the pause command is in effect. Parameter value set to 0 will be coerced to 1

Index 6086h	Names	Motor running curve type motion profile type	Setting in effect	-	Data structure	VAR	Data type int16	
	Accessibility	RW Can map RPDO	Correlation model	-	Data range	- 215 - (215-1)	Factory Settings	0

Set the curve type for the motor position instruction or speed instruction.

0 one linear

Index 6087h	Names	Torque ramp Torque Slope			Setting in effect	Run Settings Shutdown in effect	Data structure	VAR	Data type	Uint32
	accessibility	RW	Can map	RPDO	Correlation model	PT CST	Data range	0~(232-1) units: 0.1%/s)	Factory setting	232-1

Set the torque instruction acceleration in contour torque mode, which means: torque instruction increments per second.

In contour torque mode and cycle synchronous torque mode, quick stop 605A =1/2/5/6, or pause 605D=1/2 will slow down and stop according to 6087h setting.

If the parameter value exceeds the torque instruction limit, it will be forced as the limit value.

Parameter values set to 0 will be coerced to 1

Index 6091h	Names	Gear Ratio. Gear ratio			Setting takes effect	-	Data structure	ARR	Data type	Uint32
	accessibility	-	Ability to map	YES	Correlation model	PP PV HM CSP CSV	Data range	OD data range	Factory set	OD defaults

The gear ratio is used to establish the proportional relationship between the user-specified load shaft displacement and the motor shaft displacement.

Electronic gear ratio setting range:

(0.001× encoder resolution /10000, 4000× encoder resolution /10000)

Beyond this range, Er.B03(electronic gear ratio overrun fault) will occur

Relation between motor position feedback (encoder unit) and load shaft position feedback (instruction unit) :

Motor position feedback = load shaft position feedback × gear ratio

The relationship between motor speed (rpm) and load shaft speed (instruction unit /s) :

Load shaft speed x gear ratio 6091h motor speed (rpm)=

X 60 encoder resolution

The relation between motor acceleration (rpm/ms) and load shaft acceleration (instruction unit /s2) :

Motor acceleration = Load shaft acceleration x gear ratio 6091h / 1000 encoder resolution / 60

Subindex Oh	Name	Number of sub-indexes of gear ratiosub-indexes			Setting takes effect	-	Data structure	-	Data type	Uint8
	accessibility	RO	Can map	NO	Correlation model	-	Data range	-	Factory Settings	2

Subindex 1h	Name	Motor resolution Motor revolutions			Set effective	Run Settings take effect immediately	Data structure	-	Data type factory Settings	Uint32
	Accessibility		Ability to map	RPDO	Correlation model	-	Data range	1 - (232-1)		1

Set the motor resolution RW axis resolution

Subindex 2h	Name	Shaft revolutions			Set effective	Run Settings take effect immediately	Data structure	-	Data type	Uint32
	accessibility	RW	Can map	RPDO	Correlation model	-	Data range	1 - (232-1)	Factory Settings	1

Set the load shaft resolution.

The range of gear ratio is: 0.001 x encoder resolution /10000~4000 x encoder resolution /10000 Outside of this range, Er.B03(gear ratio setting overrun failure) will occur.

index 6098h	Name	Return to Zero method Homing method		Setting takes effect	Run Settings Shutdown in effect	Data structure	VAR	Data type	int8
	accessibility	RW	Can map RPDO	Related patterns	HM	Data range	0 to 35	Factory Settings	0

Select origin back to zero mode:

1	Reverse return to zero, the deceleration point is the reverse limit switch, the origin is the motor Z signal, before encountering Z signal must first encounter the reverse limit falling edge positive return to zero, the deceleration point is the positive limit switch, the origin is the motor Z signal, before encountering Z signal must first encounter the positive limit falling edge positive return to zero, the deceleration point is the origin switch, the origin is the motor Z signal, Before encountering the Z signal, we must first encounter the origin switch on the same side of the falling edge back to zero, the deceleration point is the origin switch, the origin is the motor Z signal, the origin point must first encounter the origin switch on the same side of the rising edge back to zero, the deceleration point is the origin switch, the origin is the motor Z signal, Before encountering Z signal, we must first encounter the origin switch on the same side of the falling edge back to zero, deceleration point is the origin switch, the origin is the motor Z signal, before encountering Z signal, we must first encounter the origin switch on the same side of the rising edge back to zero. Deceleration point is the origin switch, the origin is the motor Z signal, before encountering the Z signal must first encounter the origin switch on the same side of the falling edge back to zero, deceleration point is the origin switch, the origin is the motor Z signal, Before encountering Z signal, we must first encounter the origin switch on the same side of the rising edge positive return to zero, deceleration point is the origin switch, the origin is the motor Z signal, before encountering Z signal, we must first encounter the origin switch on the other side of the rising edge positive return to zero, deceleration point is the origin switch, the origin is the motor Z signal, before encountering Z signal, we must first encounter the origin switch on the other side of the falling edge reverse return to zero. The deceleration point is the origin switch, the origin is the motor Z signal, Before encountering the Z signal, we must first encounter the origin switch on the same side of the falling edge back to zero, the deceleration point is the origin switch, the origin is the motor Z signal, encounter Z signal must first encounter the origin switch on the same side of the rising edge back to zero, the deceleration point is the origin switch, the origin switch on the other side of the motor Z signal, before encountering Z signal must first encounter the origin switch on the other side of the rising edge back to zero, the deceleration point is the origin switch, the origin switch on the other side of the motor Z signal, Before encountering Z signal, must first encounter the origin switch on the other side of the falling edge
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	NA
16	NA
17-32	Similar to 1 to 14, but the deceleration point coincides with the origin
33	Reverse back to zero with the origin being the motor Z signal
34	Forward back to zero, origin is the motor Z signal
35	Take the current position as the origin

Index 6099h	Names	Homing speeds back to zero		Setting in effect	-	Data structure	ARR	Data type factory Settings	Uint32
	accessibility	-	Ability to map YES	Correlation model	HM	Data range	OD data range		OD Default

Set 2 speed values in back to zero mode:

1, search deceleration point signal speed

2. Search for the origin signal speed.

Subindex Oh	Name	Number of homingspeed sub-indexes. Number of homingspeed sub-indexes		Setting takes effect	-	Data structure	-	Data type	Uint8
	accessibility	RO	Can map Wo	Correlation model	-	Data range	2	Factory Settings	2

Subindex 1h	Name	Search for deceleration point signal speed speed during search for switch		Setting in effect	Run Settings shutdown takes effect	Data structure	-	Data type	Uint 32
	accessibility	RW	Can map RPDO	Correlation model	HM	Data range	0-(232-1) (instruction units /s)	Factory Settings	1747627

Set the search deceleration point signal speed, this speed can be set to a higher value, to prevent the return to zero time is too long, the occurrence of return to zero timeout fault Er.601. Note: After the deceleration point is found from the station, the operation will be slowed down. During the deceleration process, the change of the origin signal is shielded from the station. In order to avoid touching the origin signal in the deceleration process,

Sub-index 2h	Name	Search for origin signal speed speed during search for zero			Set in effect	Run Settings shutdown takes effect	Data structure	-	Data type	int32
	accessibility	RW	Can map	RPDO	Correlation model	HM	Data range	10~(232-1) (instruction units /s)	Factory Settings	100

Set the search origin signal speed, which should be set to a lower speed to prevent overshoot when the servo stops at high speed, resulting in a large deviation between the stop position and the set mechanical origin.

Index 609Ah	Names	Homing acceleration back to zero			Set to take effect	Run Settings shutdown takes effect	Data structure	VAR	Data type factory set	Uint32
	accessibility	RW	Can map	RPDO	Correlation model	HM	Data range	0~(232-1) (instruction unit /s2)		100

Set the acceleration in origin back to zero mode. After the origin return to zero is activated, the set value takes effect.

In HM mode, when the pause mode 605Dh=2, it will also slow down and stop at 609Ah.

The meaning of this object dictionary is that the position instruction per second (instruction unit) increment parameter value set to 0 will be coerced to 1

Index 60BOh	Name	Position Offset			Set to take effect	Run Settings shutdown takes effect	Data structure	VAR	Data type	int32
		RW	Can map	RPDO	Correlation model	CSP	Data range	-231-(231-1) (unit: instruction unit)	Factory Settings	0

Accessibility Set the amount of servo position instruction offset in periodic synchronous position mode, after offset: servo target position = 607Ah+60B0h

Index 60B1h	Name	Speed Offset Velocity Offset			Setting takes effect	Run Settings Shutdown takes effect CSP/CSV	Data structure	VAR	Data type	int32
		RW	Can map	Rpdo-related patterns			Data range	-231-(231-1) (unit: instruction unit)	Factory Settings	0

Accessibility Settings EtherCAT external speed feedforward signal in periodic sync position mode (2005-14h=2); Set the servo speed instruction offset amount in periodic synchronous speed mode, after the offset: servo target speed =60FFh+60B1h

Index 60B2h	Name	Torque Offset			Set to effect	Run Settings Shutdown takes effect CSP/CSV/CST	Data structure	VAR	Data type	INT16
	Accessibility	RW	Can map	RPDO	Correlation model		Data range	-4000 to 4000 (unit: 0.1%)	Factory setting	0

Set the periodic sync position mode with the EtherCAT external torque feedforward signal at the periodic sync speed (effective at 2006-OCh=2); Set the servo torque instruction offset amount under periodic synchronous torque mode, after the offset:

= 6071h+60B2h

Index	N White people ask acce questions	Probe function Touch probe function		Set the king pair	Run Settings Shutdown in effect	Data structure	VAR	Data type Datapoint generation	Uint16
60B8h		RW	Can map	RPDO	Correlation model	-	Data range	0-65535.	Factory Settings tings	0

And the function of Probe 2.

Bit bit	Description	Scope
0	Probe 1 Enable	0-- Probe 1 is disabled 1-- Probe 1 is enabled
1	Probe 1 Trigger mode	0-- single trigger, only triggered when the trigger signal is active for the first time 1-- continuous trigger
2	Probe 1 Trigger signal selection	0--DI8 input signal 1--Z signal
3	NA	
4	Probe 1 Enable the rising edge	0-- The rising edge does not latch 1-- Rising edge latch
5	Probe 1 Enable the falling edge	0-- The falling edge does not latch 1-- Falling edge latch
6	NA	
7	NA	
8	Probe 2 Enable	0-- Probe 2 is disabled 1-- Probe 2 is enabled
9	Probe 2 Trigger mode	0-- single trigger, only triggered when the trigger signal is active for the first time 1-- continuous trigger
10	Probe 2 Trigger signal selection	0--ODI9 input signal 1--Z signal
11	NA	
12	Probe 2 Enable rising edge	0-- The rising edge does not latch 1-- Rising edge latch
13	Probe 2 Falling edge Enable	0-- The falling edge does not latch 1-- falling edge latch
14	NA	
15	NA	

Encoder, the Z signal refers to the 0 position of each turn.

Index	Name	Probe state Touch probe status			Set in effect	-	Data structure	VAR	Data type	Uint16
60B9h	accessibility	RO	Can map	TPDO	Correlation model	-	Data range	-	Factory Settings	-

State of probe 1 and probe 2.

Bit bit	Description	Remarks
0	Probe 1 enables: 0-- Probe 1 is disabled 1-- Probe 1 is enabled	
1	Probe 1 is executed with rising edge latch 0-- Rising edge latch not executed 1-- Rising edge latch executed	
2	Probe 1 Falling edge latch executed 0-- Falling edge latch not executed 1-- Falling edge latch executed	
3	NA	
4	NA	
5	NA	
6	Probe 1 trigger signal selection 0 - DI8 Input signal 1-Z signal	
7	Probe 1 Trigger signal monitoring 0 - DI8 is low 1 - DI8 is high	HOC-41=2, in continuous mode, bit6 and bit7 record the number of times the corresponding probe function has been executed, and the value is recorded between 0 and 3
8	Probe 2 enables: 0-- Probe 2 is not enabled 1-- Probe 2 is enabled	
9	Probe 2 is executed by rising edge latch 0-- The rising edge latch is not executed 1-- Rising edge latch executed	
10	Probe 2 Falling edge latch executed 0-- Falling edge latch not executed 1-- Falling edge latch executed	
11	NA	
12	NA	
13	NA	
14	Probe 2 Trigger signal Select 1-Z signal 0 - DI9 input signal	HOC-41=2, in continuous mode, bit14 and bit15 record the number of times the corresponding probe function has been executed, and the value is recorded between 0 and 3
15	Probe 2 triggers signal monitoring 1-DI9 for high 0 - DI9 is low	

index	name	Probe 1 Rise edge position feedback Touch Probe Pos1 Pos Value			Setting in effect	-	Data structure	VAR	Data type	int32
60BAh	accessibility	RO	Can map	TPDO	Correlation model	-	Data range	- (Unit: instruction unit)	Factory Settings	-

Show the rising edge time of the probe 1 signal, position feedback (instruction unit).

Index 60BBh	name	Probe 1 Drop edge position feedback Touch Probe Pos1 Neg Value			Set effective	-	Data structure	VAR	Data type	int32
	Accessibility	RO	Can map	TPDO	Correlation model	-	Data range	- (Unit: instruction unit)	Factory Settings	-
Show the falling edge time of the probe 1 signal, position feedback (instruction unit).										

Index 60BCh	Name	Probe 2 Rising edge position feedback Touch Probe Pos2 Pos Value			Set effective	-	Data structure	VAR	Data type	int32
	Accessibility	RO	Can map	TPDO	Correlation model	-	Data range	- (Unit: instruction unit)	Factory Settings	-
Shows the rising edge time of the probe 2 signal, position feedback (instruction unit).										

Index 60BDh	Name	Probe 2 Drop edge position feedback Touch Probe Pos2Neg Value			Set effective	-	Data structure	VAR	Data type	int32
	Accessibility	RO	Can map	TPDO	Correlation model	-	Data range	- (Unit: instruction unit)	Factory Settings	-
Shows the falling edge time of the probe 2 signal, position feedback (instruction unit).										

Index 60EOh	Names	Forward maximum torque limit forward Direction Torque Limit Value			Set effective	Run Settings shutdown takes effect	Data structure	VAR	Data type factory	Uint16
	accessibility	RW	Can map	RPDO	Correlation model	ALL	Data range	0 to 4000 (unit: 0.1%)	set	3500
Set the maximum forward torque limit value for the servo. Based on the Settings of 2007-08h, decide the final torque limit value.										

Index 60E1h	Name	Negative maximum torque limit Reverse Direction Torque Limit Value			Set effective	Run Settings Shutdown effect	Data structure	VAR	Data type	Uint16
	Accessibility	RW	Can map	RPDO	Correlation model	ALL	Data range	0 to 4000 (unit: 0.1%)	Factory Settings	3500
Set the negative maximum torque limit for the servo. Based on the Settings of 2007-08h, determine the final torque limit value.										

Index 60E3h	Names	Supported return to zero Method Support Homing Method			Setting takes effect	-	Data structure	ARR	Data type factory	Uint16
	accessibility	RO	Can map	NO	Correlation model	HM	Data range	OD data range	Settings	OD default
Displays the mode of return to zero supported by the servo.										

Subindex 00h	Name	Number of subindexes supported in the return-to-zero mode Number of homing mode sub-indexes			Set effective	-	Data structure	-	Data type	Uint8
	accessibility	RO	Can map	NO	Correlation model	-	Data range	-	Factory Settings	31

Subindex 01h	Name	Zero return mode 1 is supported Support Homing Method 1	Set effective	-	Data structure	-	Data type	Uint16
	Accessibility	RO	Can map	NO	Correlation model	-	Data range	-	Factory Settings	0301h

What it means:

bit0~bit7	The lower 8 bits are used to display the supported return to zero modes. 6098 can be set to the corresponding value.
bit8 support	Whether to support the relative position back to zero Unsupported
bit9	Whether absolute position return to zero is supported nonsupport Support
bit10~bit15	NA

The 60E6h setting uses the relative or absolute position to return to zero.

Subindex 02h	Name	Supported return to zero mode 2 Support Homing Method 2	Set the effective	-	Data structure	-	Data type factory	Uint16
	Accessibility	RO	Can map	NO	mode	-	Data range	-	Settings	0302h

The lower 8 bits are used to display the supported return to zero modes.

Subindex 03h	Name	Supported way back to zero 3 Support Homing Method 3	Setting takes effect	-	Data structure	-	Data type	Uint16
	accessibility	RO	Can map	NO	Correlation model	-	Data range	-	Factory Settings	0303h

The lower 8 bits are used to display the supported return to zero modes.

Subindex 04h	Name	Supported return to Zero Method 4Support Homing Method 4	Setting takes effect	-	Data structure	-	Data type	Uint16
	accessibility	RO	Can map	NO	Correlation model	-	Data range	-	Factory Settings	0304h

The lower 8 bits are used to display the supported return to zero modes.

Subindex 05h	Name	Supported return to zero Method 5Support Homing Method 5	Setting takes effect	-	Data structure	-	Data type	Uint16
	accessibility	RO	Can map	NO	Correlation model	-	Data range	-	Factory Settings	0305h

The lower 8 bits are used to display the supported return to zero modes.

Subindex 06h	Name	Supported return to zero Method 6Support Homing Method 6	Setting takes effect	-	Data structure	-	Data type	Uint16
	accessibility	RO	Can map	NO	Correlation model	-	Data range	-	Factory Settings	0306h

The lower 8 bits are used to display the supported return to zero modes.

Subindex 07h	Name	Zero return mode 7 supported Support Homing Method 7	Set effective	-	Data structure	-	Data type	Uint16
	accessibility	RO	Can map	NO	Correlation model	-	Data range	-	Factory Settings	0307h

The lower 8 bits are used to display the supported return to zero modes.

Subindex 08h	Name	Zero return mode 8 supported Support Homing Method 8	Set effective	-	Data structure	-	Data type	Uint16
	accessibility	RO	Can map	NO	Correlation model	-	Data range	-	Factory Settings	0308h

The lower 8 bits are used to display the supported return to zero modes.

Subindex 09h	Name	Zero return mode 9 Supported Support Homing Method 9			Set in effect	-	Data structure	-	Data type	Uint16
	Accessibility	RO	Can map	NO	Correlation model	-	Data range	-	Factory Settings	0309h
The lower 8 bits are used to display the supported return to zero modes.										

Subindex OAh	Names	Supported return to zero mode 10 Support Homing Method 10			Set in effect	-	Data structure	-	Data type factory Settings	Uint16
	accessibility	RO	Can map	NO	Correlation model	-	Data range	-		030Ah
The lower 8 bits are used to display the supported return to zero modes.										

Subindex OBh	Name	Supported return to zero methods 11Support Homing Method 11			Setting takes effect	-	Data structure	-	Data type	Uint16
	accessibility	RO	Can map	NO	Correlation model	-	Data range	-	Factory Settings	030Bh
The lower 8 bits are used to display the supported return to zero modes.										

Subindex Och	Names	Supported Return to Zero Method 12Support Homing Method 12			Setting takes effect	-	Data structure	-	Data type factory Settings	Uint16
	accessibility	RO	Can map	NO	Correlation model	-	Data range	-		030Ch
The lower 8 bits are used to display the supported return to zero modes.										

Subindex ODh	Name	Supported return to zero method 13 Support Homing Method 13			Set effective	-	Data structure	-	Data type factory Settings	Uint16
	Accessibility	RO	Can map	NO	Correlation model	-	Data range	-		030Dh
The lower 8 bits are used to display the supported return to zero modes.										

Subindex OEh	Name	Zero return mode 14 supported Support Homing Method 14			Set effective	-	Data structure	-	Data type	Uint16
	Accessibility	RO	Can map	NO	Correlation model	-	Data range	-	Factory Settings	030Eh
The lower 8 bits are used to display the supported return to zero modes.										

Subindex OFh	Name	Supported return to zero Method 15Support Homing Method 15			Setting takes effect	-	Data structure	-	Data type factory Settings	Uint16
	accessibility	RO	Can map	NO	Correlation model	-	Data range	-		030Fh
The lower 8 bits are used to display the supported return to zero modes.										

Subindex 10h	Name	Supported way back to zero 16 Support Homing Method 16			Set effective mode	-	Data structure	-	Data type	Uint16
	accessibility	RO	Can map	NO		-	Data range	-	Factory Settings	0310h
The lower 8 bits are used to display the supported return to zero modes.										

Subindex 11h	Name	Supported way of returning to zero 17 Support Homing Method 17			Setting takes effect	-	Data structure Data Type Data range	-		Uint16
	accessibility	RO	Can map	NO	Correlation model	-		-	Factory Settings	0311h
The lower 8 bits are used to display the supported return to zero modes.										

Subindex 12h	Name	Supported way of returning to zero 18 Support Homing Method 18			Set the effective mode	-	Data structure	-	Data type	Uint16
	Accessibility	RO	Can map	NO		-	Data range	-	Factory Settings	0312h
The lower 8 bits are used to display the supported return to zero modes.										

Subindex 13h	Name	Zero return mode 19 Supported Support Homing Method 19		Set in effect	-	Data structure	-	Data type	Uint16
	Accessibility	RO	Can map	NO	Correlation model	-	Data range	-	Factory Settings	0313h
The lower 8 bits are used to display the supported return to zero modes.										

Subindex 14h	Name	Supported return to zero mode 20 Support Homing Method 20		Set effective	-	Data structure	-	Data type factory Settings	Uint16
	Accessibility	RO	Can map	NO	Correlation model	-	Data range	-		0314h
The lower 8 bits are used to display the supported return to zero modes.										

Subindex 15h	Name	Supported return to zero Method 21Support Homing Method 21		Setting takes effect	-	Data structure	-	Data type	Uint16
	accessibility	RO	Can map	NO	Correlation model	-	Data range	-	Factory Settings	0315h
The lower 8 bits are used to display the supported return to zero modes.										

Subindex 16h	Name	Supported return to Zero Method 22Support Homing Method 22		Setting takes effect	-	Data structure	-	Data type factory Settings	Uint16
	accessibility	RO	Can map	NO	Correlation model	-	Data range	-		0316h
The lower 8 bits are used to display the supported return to zero modes.										

Subindex 17h	Name	Supported zero return mode 23 Support Homing Method 23		Set effective	-	Data structure	-	Data type	Uint16
	accessibility	RO	Can map	NO	Correlation model	-	Data range	-	Factory Settings	0317h
The lower 8 bits are used to display the supported return to zero modes.										

Subindex 18h	Name	Zero return mode 24 supported Support Homing Method 24		Set effective	-	Data structure	-	Data type	Uint16
	accessibility	RO	Can map	NO	Correlation model	-	Data range	-	Factory Settings	0318h
The lower 8 bits are used to display the supported return to zero modes.										

Subindex 19h	Name	Supported Return to Zero Method 25Support Homing Method 25		Setting takes effect	-	Data structure	-	Data type	Uint16
	accessibility	RO	Can map	NO	Correlation model	-	Data range	-	Factory Settings	0319h
The lower 8 bits are used to display the supported return to zero modes.										

Subindex 1Ah	Name	Supported Return to Zero Method 26Support Homing Method 26		Setting takes effect	-	Data structure	-	Data type	Uint16
	accessibility	RO	Can map	NO	Correlation model	-	Data range	-	Factory Settings	031Ah
The lower 8 bits are used to display the supported return to zero modes.										

Subindex 1Bh	Name	Supported return to Zero Method 27Support Homing Method 27		Setting takes effect	-	Data structure	-	Data type	Uint16
	accessibility	RO	Can map	NO	Correlation model	-	Data range	-	Factory Settings	031Bh
The lower 8 bits are used to display the supported return to zero modes.										

Subindex 1Ch	Name	Supported ways to return to zero 28 Support Homing Method 28		Set effective	-	Data structure	-	Data type	Uint16
	accessibility	RO	Can map	NO	Correlation model	-	Data range	-	Factory Settings	031Ch
The lower 8 bits are used to display the supported return to zero modes.										

Subindex 1Dh	Name	Supported ways to return to zero 29 Support Homing Method 29			Set effective	-	Data structure	-	Data type	Uint16	
	accessibility	RO	Can map	NO	Correlation model	-	Data range	-	Factory Settings	031Dh	

The lower 8 bits are used to display the supported return to zero modes.

60FCh(
) =
6062h(
)
(6091h)

Subindex 1Eh	Name	Supported Return to zero Method 30Support Homing Method 30			Setting takes effect	-	Data structure	-	Data type	Uint16	
	accessibility	RO	Can map	NO	Correlation model	-	Data range	-	Factory Settings	031Eh	

The lower 8 bits are used to display the supported return to zero modes.

Subindex 1Fh	Name	Supported return to zero Method 31 Support Homing Method 31			Set effective	-	Data structure	-	Data type	Uint16	
	accessibility	RO	Can map	NO	Correlation model	-	Data range	-	Factory Settings	031Fh	

The lower 8 bits are used to display the supported return to zero modes.

Index 60E6h	Names	Actual PositionCalucation Method for calculating actual location			Setting takes effect	Run Settings shutdown takes effect	Data structure	VAR	Data type	Uint8	
	Accessibility	RW	Can map	NO	Correlation model	HM	Data range	0 ~ 1	Factory Settings	0	

Set how position bias is handled after the origin is returned to zero.

Set value	How the actual position is calculated
0	Absolute position back to zero, origin back to zero after completion: Position feedback 6064 set to origin offset 607Ch
1	When the relative position is returned to zero, the origin return to zero is complete: Position feedback 6064 superimposed position bias 607Ch on the original basis

After triggering the origin back to zero, this object change will be masked.

Index 60F4h	Name	Position bias Following error actual value			Set in effect	-	Data structure	VAR (unit: instruction unit)	Data type	Int32	
	accessibility	RO	Can it be mapped	TPDO	Related modes PP HM CSP		Data range		Factory setting	-	

Display position deviation (instruction unit).

Index 60FCh	Names	Location instructions Position demand value*			Set effective	-	Data structure	VAR (unit: instruction unit)	Data type	Int32	
	accessibility	RO	Can map	TPDO	Related modes PP HM CSP		Data range		Factory Settings	-	

Display position instruction (encoder unit)).

In the servo enabled state, when no warning occurs, the position instruction (encoder unit) and the position instruction (instruction unit) have the following relationship:

Index 60FDh	Name	Numeric input Digital Input			Set effective	-	Data structure	VAR	Data type	Uint32
	accessibility	RO	Can map	TPDO	Correlation model	-	Data range	0 ~ FFFFFFFF	Factory setting	0

DI

0
-
1
-

bit
DI

200C-2A=2			200C-2A=0 200C-2A=1 200C-2A=3	
Bit	signal		Bit	signal
0	Reverse overrange switch		0	Reverse overrange switch
1	Forward overrange switch		1	Forward overrange switch Origin switch
2	Origin switch		2	
3 ~ 15	NA		3-15	NA
16	Z Signal		16	DI1
17	Probel		17	DI2
18	Probe2		18	DI3
19	NA		19	DI4
20	DI1		20	DI5
21	DI2		21	DI6
22	DI3		22	NA
23	Forward torque output		23	DI8
24	Reverse torque output		24	DI9
25 to 31	NA		25 to 31	NA

index 60FEh	Name	Digital Output Digital output			Setting in effect	-	Data structure	ARR	Data type	Int 32
	accessibility	-	Ability to map	YES	Correlation model	-	Data range	OD data range	Factory Settings	OD default

Reflects the current DO terminal logic of the drive.

Subindex 0h	Name	Number of digitaloutput sub-indexes. Number of digitalOutput sub-indexes			Setting takes effect	-	Data structure	-	Data type	Uint32
	accessibility	RO	Can map	NO	Correlation model	-	Data range	-	Factory Settings	x02

subindex	Name	Physical output Physical Output		Set effective	Run Settings shutdown takes effect	Data structure	-	Data type	Uint32
1h	accessibility	RW	Can map	RPDO	Correlation model	-	Data range	0 FFFFFFFF	Factory setting	0

DO

DO
bit

Bit	Related DO	Description
0	Holding brake	Responds whether the lock is working 0: Hold gate does not work 1: The lock works
1 ~ 15	NA	
16	DO1	Force output (0:off, 1:on), only when bit16 of 60FE-02 is set to 1
17	DO2	Force output (0:off, 1:on), only when bit17 of 60FE-02 is set to 1
18	DO3	Force output (0:off, 1:on), only when bit18 of 60FE-02 is set to 1
19 to 31	NA	

Sub-index 2h	Name	Physical output is enabled Bit Mask		Set effective	Run Settings Shutdown takes effect	Data structure	-	Data type	Uint32
	accessibility	RW	Can map	NO	Correlation model	-	Data range	0 FFFFFFFF	Factory Settings	0

DO

Each bit represents the DO signal as follows:

Bit	Related DO	Description
0 ~ 15	NA	
16	DO1	200D-12h=4, DO1 force output enabled
17	DO2	200D-12h=4, DO2 forcible output Enables DO3
18		200D-12h=4, DO3 forced output is enabled
19 to 31	NA	

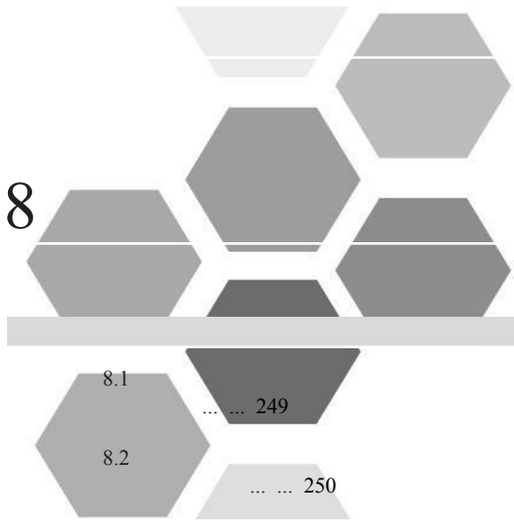
Index 60FFh	Names	Target speed Profile velocity		Set effective	Run Settings Shutdown takes effect	Data structure	VAR	Data type	int32
	accessibility	RW	Can map	YES	Correlation model	PV CSV	Data range	-231-(231-1) (instruction units /s)	Factory Settings	0

Index	Name	Support servo operation mode Supported drive modes			Set in effect	-	Data structure	VAR	Data type	Uint32
6502h	accessibility	RO	Can map	NO	Correlation model	-	Data range	-	Factory Settings	3A1h

Reflect the servo operating mode supported by the drive:

bit	Description	Supported or not 0- Not supported 1- Supported
0	Outline Position Pattern (pp)	1
1	Variable Frequency Speed Control Mode (vl)	0
2	Contour Speed Mode (pv)	1
3	Contour Torque pattern (pt)	1
4	NA	0
5	Back to Zero mode (hm)	1
6	Interpolation mode (ip)	0
7	Cycle Sync Position Mode (csp)	1
8	Cycle Sync Speed Mode (csv)	1
9	Periodic Synchronous Torque Mode (cst)	1
10 ~ 31	Manufacturer custom	Reserved, undefined

If the device supports object dictionary 6502h, you can use it to understand the servo mode supported by the drive.



8

8.1
... ... 249

8.2
... ... 250

8.3ITune
... ... 255

8.4 ETune
... ... 257

8.5
... ... 262

8.6
... ... 374

8.7
... 280

8.8
... ... 281

8.9
... ... 289

8.10
... . 301

8.1

,



8-1

Position loop gain: 200.0Hz

Speed loop gain: 25.0Hz

Speed loop integral time constant: 50.00ms

Velocity feedforward gain: 50.0%

Load inertia ratio: 30

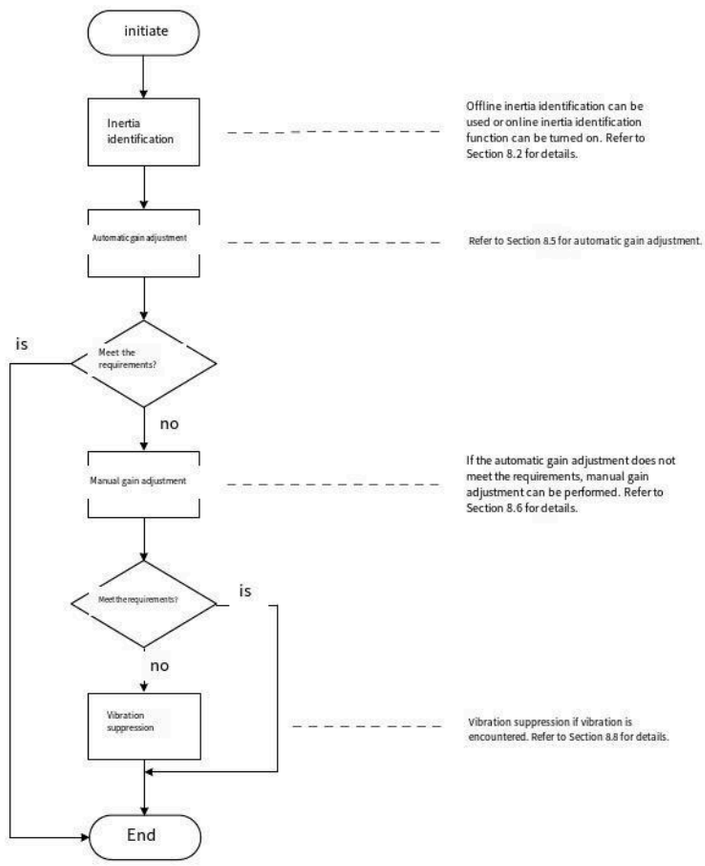
40.0Hz 200.0Hz
200.0Hz 25.0Hz

100.00ms 50.00ms 00

30 30 ms

(,)

Before the gain adjustment, it is recommended to perform a point test run to confirm that the motor can operate normally



8-1

Gain Adjustment Process			Features	Detailed Chapters
1	Inertia identification	Offline	Using the drive's own inertia recognition function, the drive automatically calculates the load inertia ratio	8.2.1
		Online	Send instructions to rotate the motor through the upper computer communication, and the driver calculates the load inertia ratio in real time	8.2.2
2	Automatic gain adjustment		With the inertia ratio set correctly, the driver automatically adjusts a set of matching gain parameters	8.5
3	Manual gain adjustment	Basic Gain	On the basis of automatic gain adjustment, if the desired effect is not achieved, manually fine-tune the gain to optimize the effect.	8.6.1
		Instruction filtering	Filter Settings for position, speed, torque instructions	8.6.3
		Feedforward gain	Enable feedforward to improve followability	8.6.4
		Pseudo-differential Regulator	Adjust the speed loop control mode to improve the anti-interference ability of low frequency band	8.6.5
		Torque disturbance observation	Start the function of torque disturbance observer to improve the ability of resisting torque disturbance	8.6.6
4	Vibration Suppression	Mechanical Resonance	Enable trap function to suppress mechanical resonance	8.8.1
		Low frequency resonance	Enable the low frequency resonance suppression filter function to suppress low frequency resonance	8.8.2

8.2

(H08-15)

$$\text{负载惯量比} = \frac{\text{机械负载总转动惯量}}{\text{电机自身转动惯量}}$$

1

(H0D-02)

2

NOTE
a 150rpm b 3000rpm/s c d 120

H08-00

8.2.1

1 H0 05 0 1

H0D-02 SET

HOD-02	name	Offline inertia identification enabled			Setting mode	Run setting related mode factory setting		-
	Set range	-	Units	-	Effective method	Effective immediately		-

Panel offline inertia recognition function operation entry. In the parameter display mode, switch to "HOD-02" function code, press "SET "key even if the off-line inertia identification can be achieved.

2

1 1

1

H09-09(
2
)

(H09-06) (H09-07)

(H09-09)

H09-09 H09-06

H09-07

H08-15

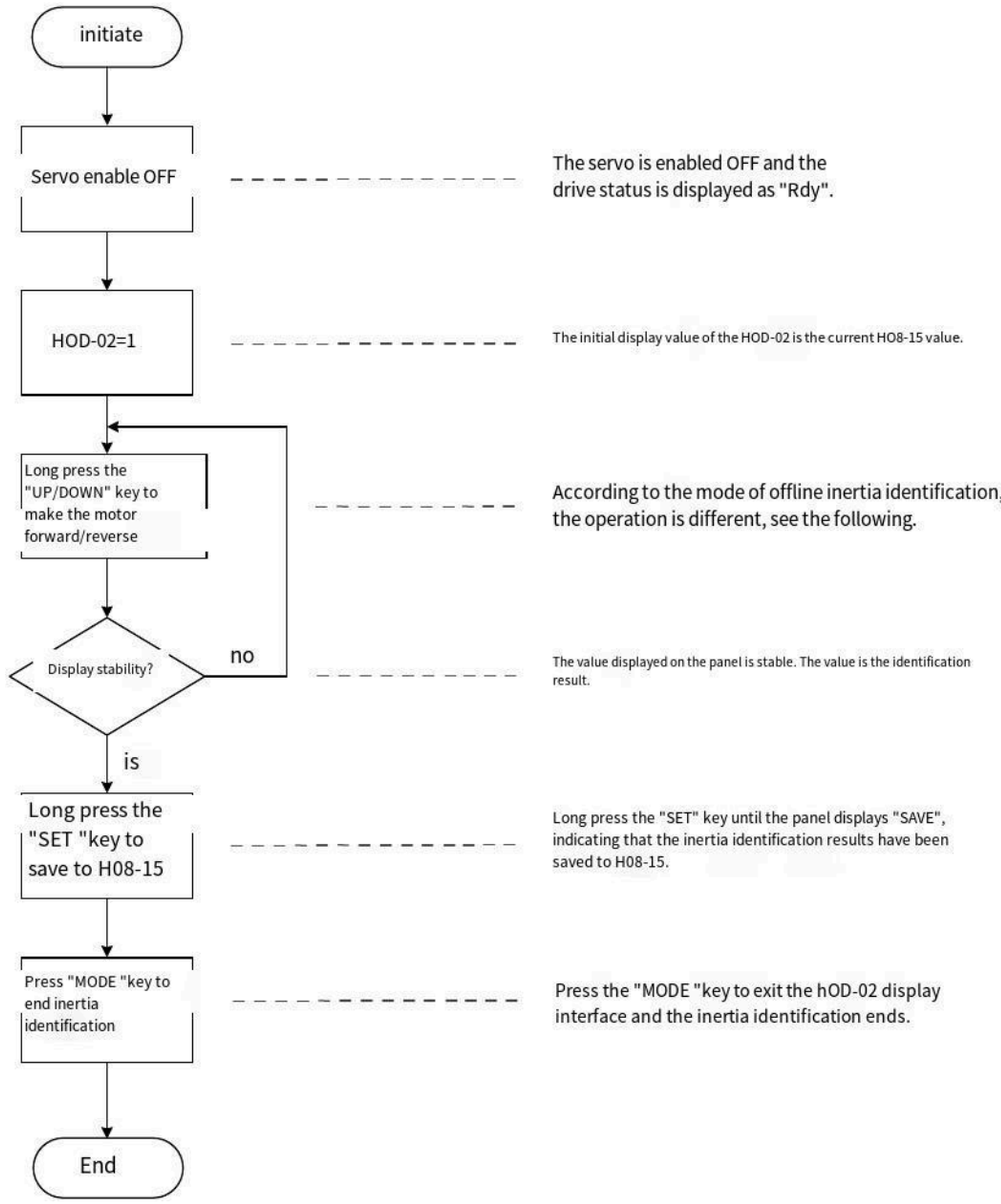
H08-15 (1.00) 30.00

1 H08-15

5.00

2 (H09-01)

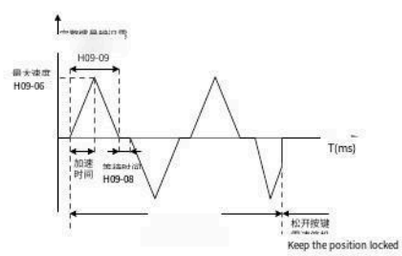
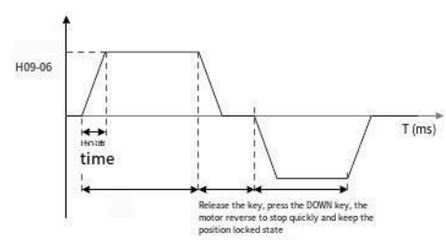
(H09-06)



8-3

JOG

8-2

item	Positive and negative triangular wave form (H09-05=0)	JOG dotting mode (H09-05=1)
Instruction form	Symmetrical triangular wave 	Trapezoidal waves 

item	Positive and negative triangular wave form (H09-05=0)	JOG dotting mode (H09-05=1)
Maximum speed	H09-06	H09-06
Acceleration and deceleration time	H09-07	H09-07
Key instructions	Long press the UP key: the motor will turn forward first and then reverse Long press the DOWN key: the motor reverses first and then turns forward Release the key: zero speed stop and keep the position locked	Press the UP key: the motor turns forward Press the DOWN key: the motor reverses Release the key: Zero speed stop, keep position locked
Interval time	H09-08	Time interval between two keystrokes
Number of motor rotation cycles	≤H09-09	Artificial control
Where applicable	Occasions where the motor travel is short	The motor travel is long, can be controlled by human occasions

Function code	Name	Set range	Units	Features	Settings	Effective Time	Settings
H09-05	Off-line inertia identification mode selection	0- positive and negative triangular wave mode 1-JOG point motion mode	-	Set the off-line inertia recognition mode	Downtime Set up immediately	Take effect	0
H09-06	Inertia identification of maximum speed	100 ~ 1000	rpm	Set the maximum speed instruction for off-line inertia identification	Stop 500 Settings	Effective	
H09-07	The inertia is identified when accelerating to the maximum speed time constant	20-800.	ms	Set the time when the motor accelerates from Orpm to the maximum speed of inertia identification (H09-06) under off-line inertia identification	Stop. Set up immediately	Take effect	125
H09-08	Waiting time after single inertia identification	50-10000.	ms	Set the time interval between two consecutive speed instructions in the off-line inertia identification of positive and negative triangular wave mode	Stop 800 Settings	Effective	
H09-09	Complete single inertia identification motor rotation number	-	r	Displays the number of turns required by the positive and negative triangular wave mode off-line inertia identification motor	-	-	250

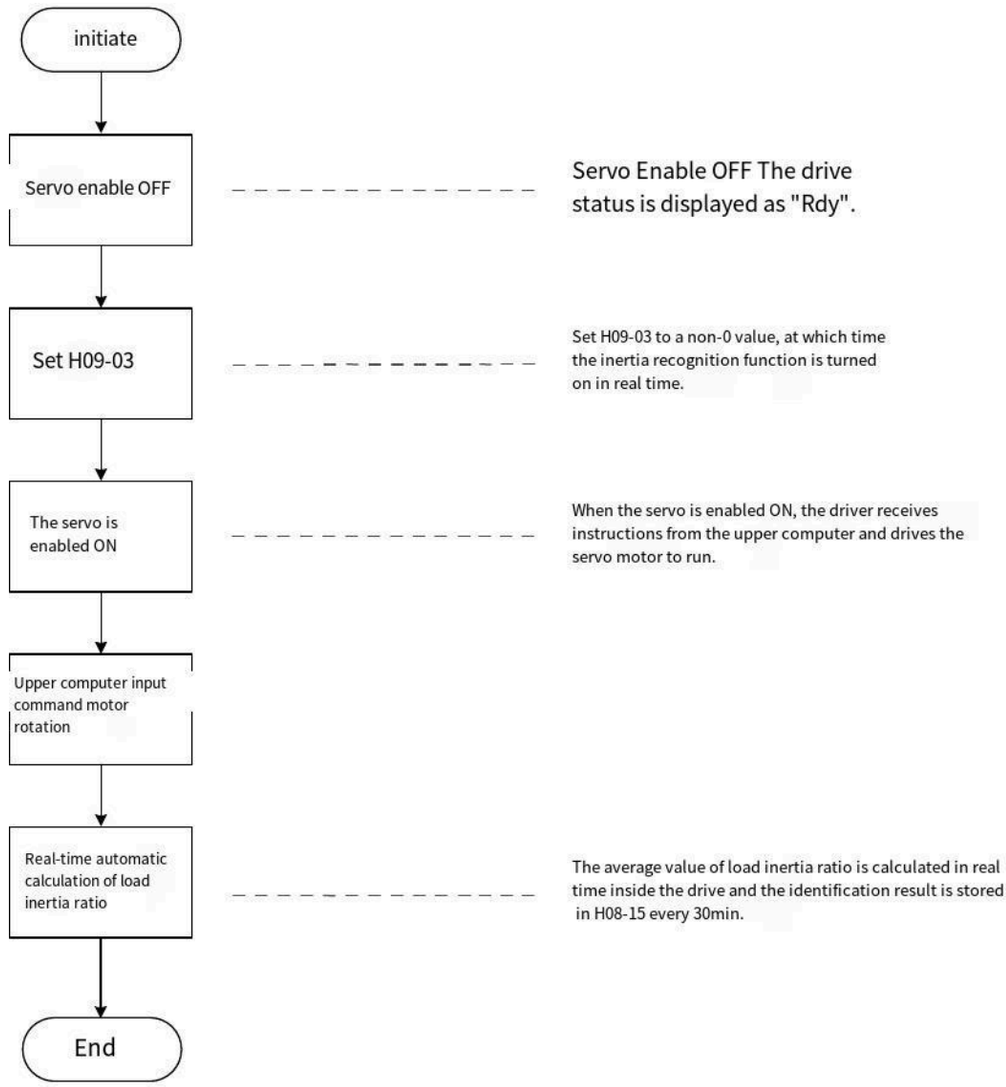
2 H0 05 2 3

H0D02 up down

set H0815

argument	Units	Name	Description
H09-05	-	Operation mode selection	2: Bidirectional recognition mode (forward turn or reverse turn) 3: one-way identification mode (forward or reverse) The starting direction of operation is determined by the up/down key.
H09-06	rpm	Maximum operating speed	Within the allowed range, the larger the value, the higher the identification accuracy
H09-07	ms	Acceleration and deceleration time	Within the allowable range, the smaller the value, the higher the identification accuracy
H09-08	ms	Wait time for a single run	Set a range of time between the two runs
H09-09	0.01 turn	Number of action turns in a single run	It is recommended to set it above 1 circle for more accurate identification results. The error of identification results increases when the distance allowed by the machine is smaller. For the mechanism with high friction and low stiffness, the identification error will be increased if the value is too large.

8.2.2



8-4

NOTE

◆ The difference between H09-03 set to 1~3 is that the real-time update speed of the load inertia ratio (HO8-15) is different:

1)H09-03=1: It is suitable for occasions where the actual load inertia ratio will hardly change, such as machine tools, wood carving machines, etc.

2) H09-03=2: Suitable for occasions where the actual load inertia ratio changes slowly.

3)H09-03=3: suitable for occasions where the actual load inertia ratio will change rapidly, such as handling robots.

Function code	Name	Set range	Units	Features	Factory mode time	Settings
H09-03	On-line inertia identification model	0- Turn off online identification 1- Turn on online identification, basically unchanged 2- Turn on online identification and change slowly 3- Turn on online identification for quick changes	-	Set the mode of online inertia identification	Run immediately Settings take effect	0

8.3 ITune

8.3.1

1 H09-27=2

30

2 H09-27=1

1 30

2

3

H09-26

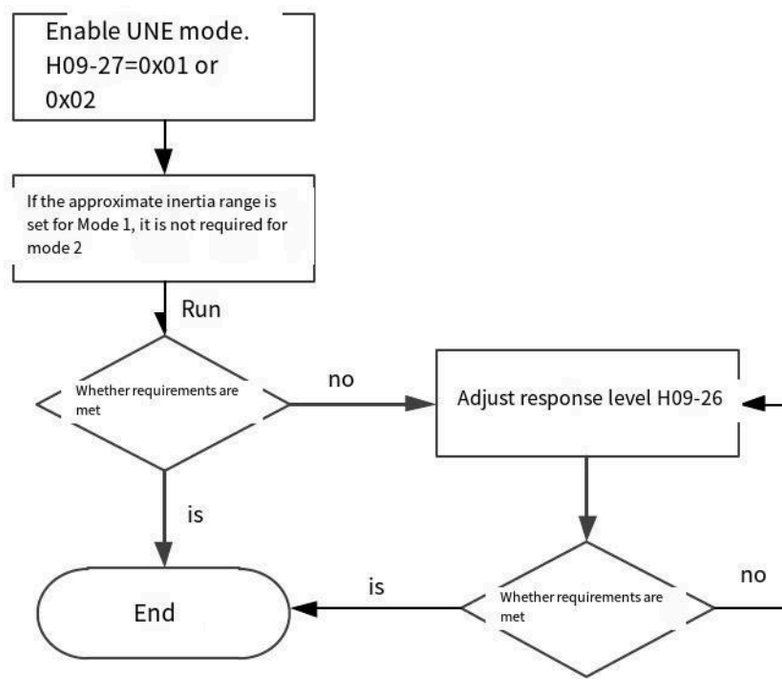
4

1

2

8.3.2

1



2

Function code	Description	Scope	Default values	Remarks
H09-26	Response level	50.0 to 500.0%	100.0	Unit percentage 0.1%. 20% per change is recommended
H09-27	Adaptive mode	0x00-- Turn off adaptive 0x01-- In mode 1, the gain restores to when adaptive is turned off 0x02 -- In mode 2, the gain recovers when the adaptive is turned off sets the other one reserved	0x01	Mode 1 can adjust the response level H09-26, and set the inertia range of H09-28 and H09-29. When the inertia is known, the inertia range is recommended, but the gain setting is invalid. Mode 2 can adjust the response level H09-26, and the inertia value will be automatically set, but the higher the response, the safety range will be reduced accordingly, such as the corresponding increase to 200%, the adaptive inertia range will be reduced by 15 times. Retain the parameter without modification
H09-28	Minimum inertia	0-80.0 times	0	Unit 1 times, the minimum inertia refers to the inertia of the rigid connection part of the motor, mode 1 if the inertia has been predicted, it is recommended to set the corresponding value to obtain the best adjustment effect.
H09-29	Maximum inertia	0-120.0 times	30.0	H01-02 is a 0.1x unit in version 11.07 or 10.07 and above, and a 1x unit in version down
H09-37	Vibration monitoring time	0-60,000 seconds	1200	Vibration is automatically recognized and suppressed when running within the set time, beyond which vibration recognition is turned off.

8.3.3

1

H09-26<=3000 / 1

H09-26 3000

2

3

H08-52-H08-54

8.3.4

1 1

2

3

4

8.3.5

1

Er.666,Er.660,Er.234,Er.201

2 Er.660

H08-

58 =
1

3 Er.666

4

Associated parameter	Pattern 1	Associated Parameters	Pattern 1	Associated Parameters	Mode 1
H07-05 torque filtering	Not Modifiable	H08-05 2nd position gain	Not modifiable	H08-46 Model Feedforward H09-00	Unmodifiable
H08-00 Speed gain	Not modifiable	H08-09 Gain toggle		Self-adjusting mode selection	Unmodifiable
H08-01 Speed Integral Time HO8-02 Position Gain	Not modifiable Not modifiable	H08-15 inertia over H08-19 speed Feed forward	Non Modifiable Non modifiable Non modifiable Non modifiable	H09-02 Adaptive filter mode HO8-52 Jitter Suppression Enables the H08-53 jitter suppression frequency	Unmodifiable Unmodifiable Unmodifiable Unmodifiable Unmodifiable Unmodifiable
H07-06 2nd torque filter	Not modifiable	H08-21 Torque feedforward			Unmodifiable

Associated parameter	Pattern 1	Associated Parameters	Pattern 1	Associated Parameters	Pattern 1
H08-03 2nd Speed Gain H08-04	Not modifiable	H08-42 Model switch	Not modifiable	H08-54 Jitter suppression compensation factor	Not modifiable
2nd Speed integration time	Not modifiable	H08-43 Model gain	Not modifiable	-	-

8.3.6

Fault phenomenon	Causes	Treatment measures
Relatively loud noise	The motor uses 17bit encoder if not corrected, the noise is relatively large	Speed feedback h0823 set 3000-2000 to filter the processing noise
	There is a fluctuation component in the instruction or a fluctuation component in the speed feedback, and it is easy to appear when the gain is large	The default of H0830 is.20, which can be appropriately increased to 30. Priority is given to processing in a way, and the best effect can be achieved with b
	Low command resolution causes vibration at the same frequency as the instruction change	This is solved by adding the mean filtering of instruction H05-06
	Current sampling noise, this and the carrier frequency is basically the same	If you do not use ITune function, the noise of S1 motor can be processed by H0705 filtering, and the effect of matching a is also very good If you do not use ITune function, if the high-frequency noise can not be eliminated by c, you can try to increase the carrier frequency HO110, but at the same time HO111 should also be turned to 0
When the response is high, but the positioning can not meet the requirements	In order to adapt to inertia changes, ITune self-adjusting parameters are not necessarily the best	If the inertia change is small, but the positioning requirements are high, you can turn off iTunes and only use the speed observer or model tracking function to improve the positioning. Or use the background ETune one-click positioning mode to adjust the effect. If the inertia has a certain change, and the positioning requirements are relatively high, you can open the ITune fine adjustment mode H0927=0X13, in this mode, you can adjust the gain separately on the basis of the response level setting, such as: manually adjust the model gain and feed forward to improve the positioning.

NOTE

8.4 ETune

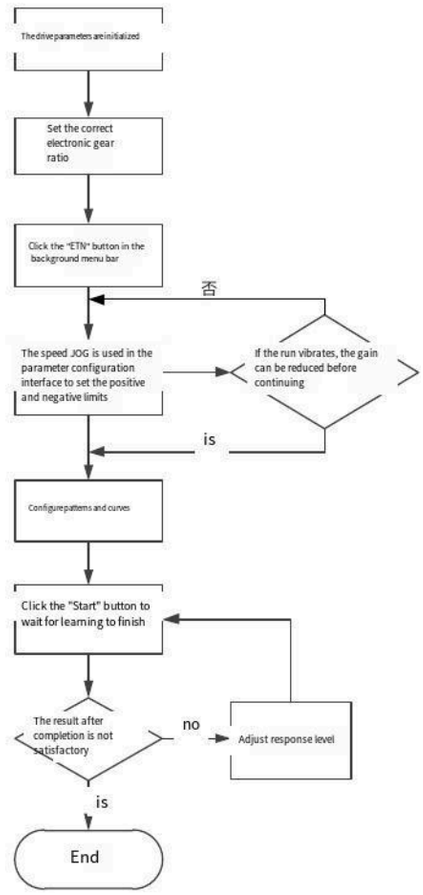
8.4.1

ETune



8.4.2

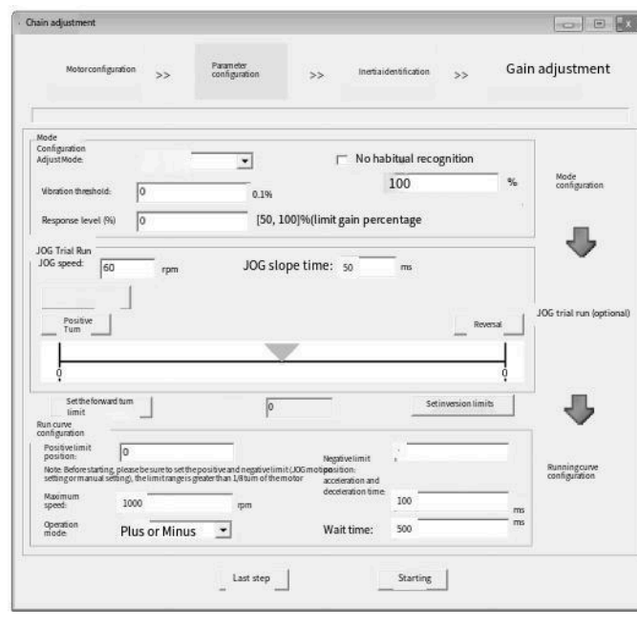
1


The drive parameters are initialized
Set the correct electronic gear ratio
Click the "ETN" button in the background menu bar
否
The speed JOG is used in the parameter configuration interface to set the positive and negative limits
If the run vibrates, the gain can be reduced before continuing
is
Configure patterns and curves
Click the "Start" button to wait for learning to finish
The result after completion is not satisfactory
no
Adjust response level
is
End

2

1 ETN

2,


Chain adjustment
Motor configuration
>>
Parameter configuration
>>
Inertia identification
>>
Gain adjustment
Mode Configuration
Adjust Mode:
No habitual recognition
Vibration threshold:
0
0.1%
100
%
Mode configuration
Response level (%)
0
[50, 100]%(limit gain percentage
JOG Trial Run
JOG speed:
60
rpm
JOG slope time:
50
ms
Positive Turn
Reversal
JOG trial run (optional)
0
0
Set the forward turn limit
0
Set inversion limits
Run curve configuration
Positive limit position:
0
Negative limit position:
Note: Before starting, please be sure to set the positive and negative limit (JOG motion setting or manual setting), the limit range is greater than 1/8 turn of the motor
Running curve configuration
Maximum speed:
1000
rpm
acceleration and deceleration time
100
ms
Operation mode:
Plus or Minus
Wait time:
500
ms
Last step
Starting

3 Jog,

(

) 1/8

H0908

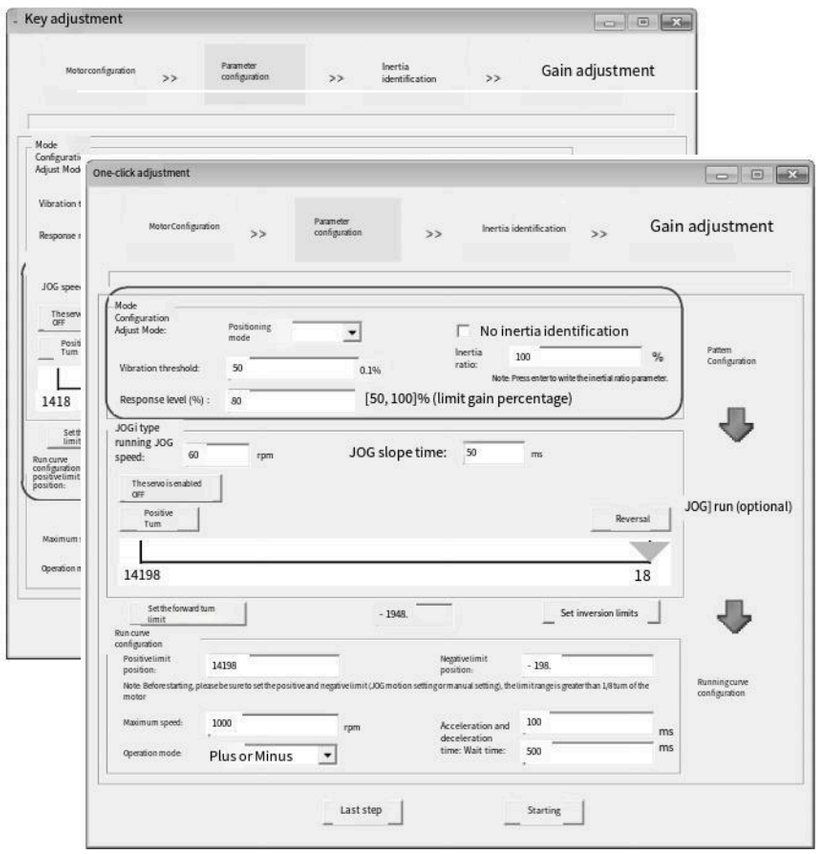
NOTE

ON

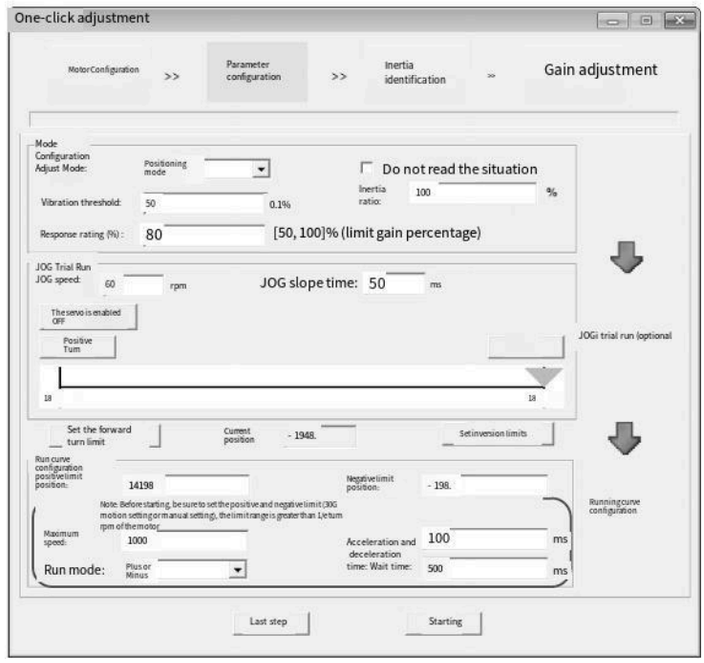
OFF

JOG

4

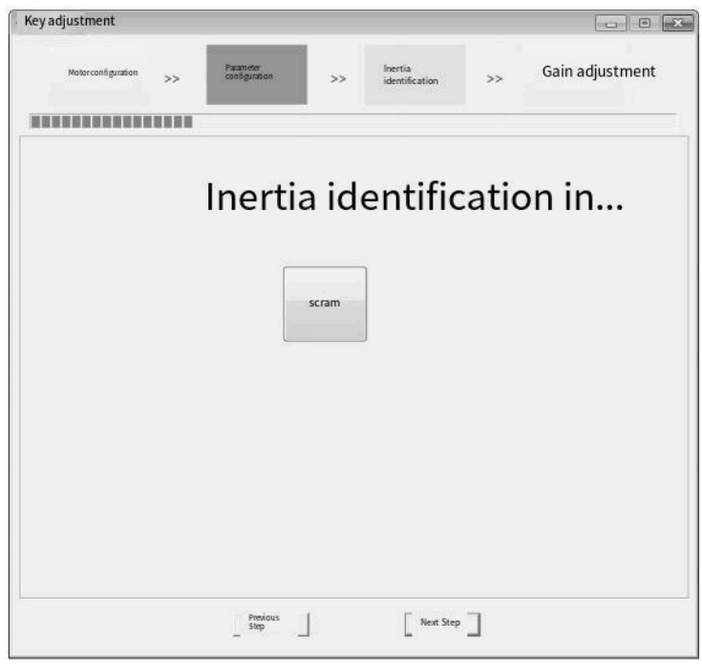


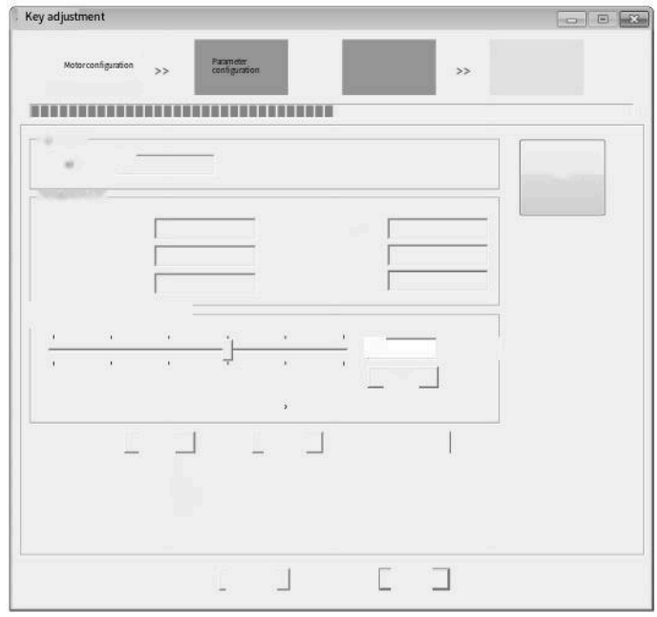
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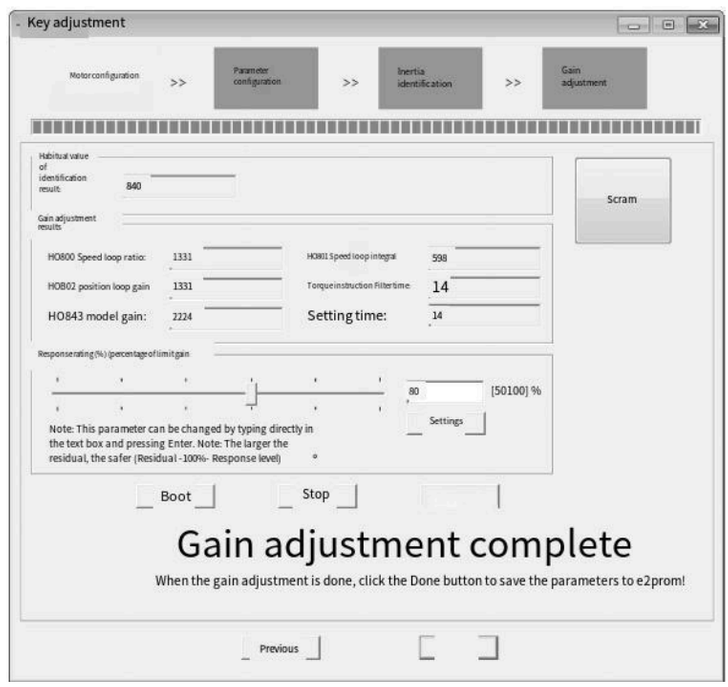
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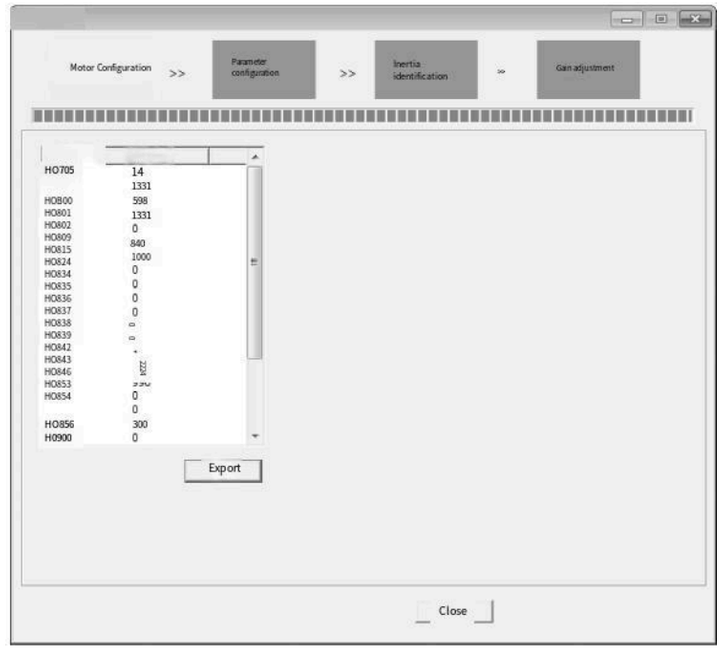
100 2000rpm),
6




Key adjustment
Motor configuration
>>
Parameter configuration
>>

7


Key adjustment
Motor configuration
>>
Parameter configuration
>>
Inertia identification
>>
Gain adjustment
Habitual value of identification result:
840
Scram
Gain adjustment results
HO800 Speed loop ratio:
1331
HO801 Speed loop integral
598
HO802 position loop gain
1331
Torque instruction Filter time
14
HO843 model gain:
2224
Setting time:
14
Responserating (%) (percentage of limit gain
80
[50100] %
Settings
Note: This parameter can be changed by typing directly in the text box and pressing Enter. Note: The larger the residual, the safer (Residual -100%- Response level)
Boot
Stop
Gain adjustment complete
When the gain adjustment is done, click the Done button to save the parameters to e2prom!
Previous



8.4.3

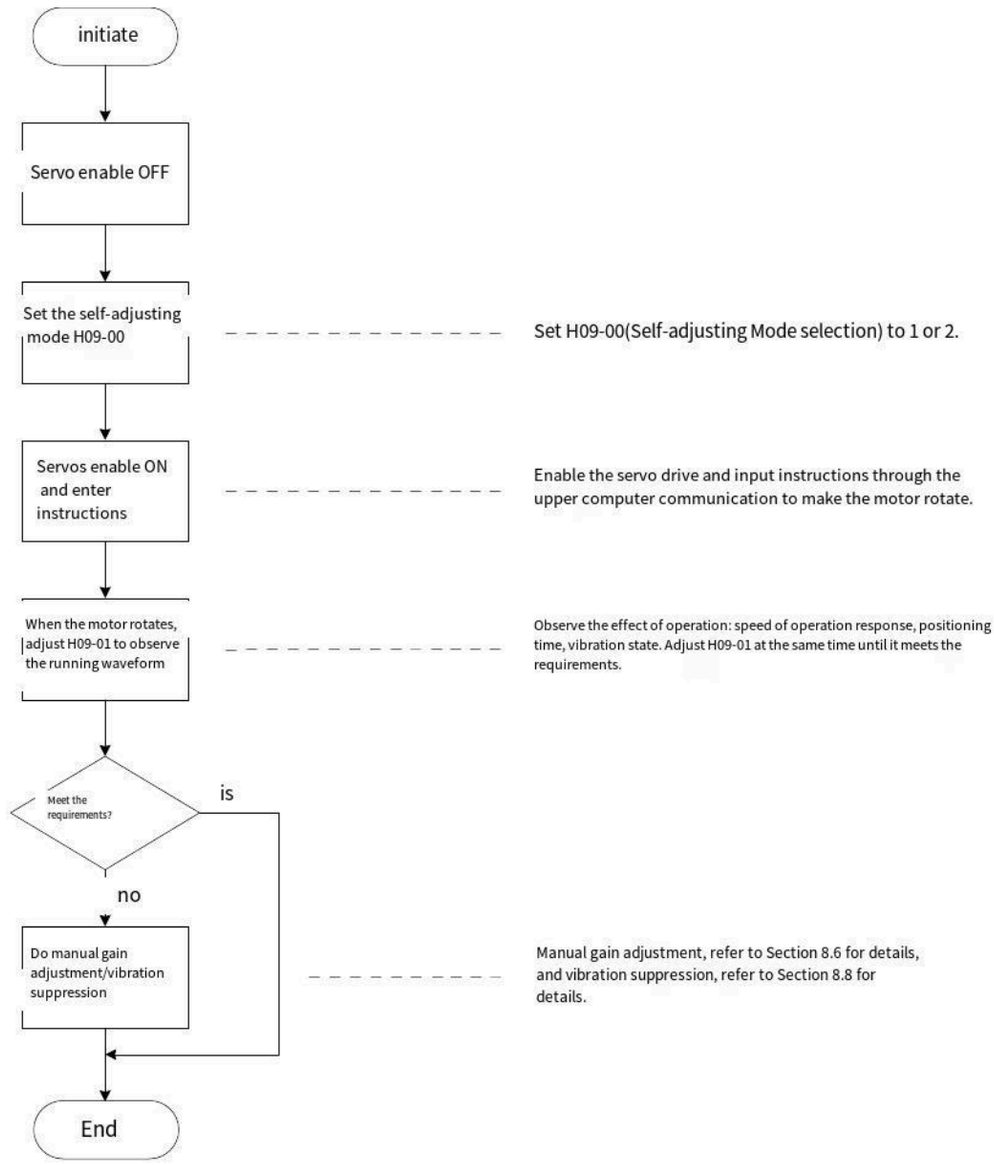
Fault phenomenon	Causes	Treatment measures
After the adjustment is completed, the actual command runs with vibration or noise	Insufficient command resolution	1. If the frequency and position scheduling are at the same frequency, the final response can be reduced, either solved by notch, or increased instruction smoothness. 2. Other cases can be solved by instruction mean filtering
The first adjustment fails, and large vibration or error is reported	-	Try to manually write in the inertia identified for the first time, and then re-do it without inertia identification, the probability of success will be much greater the second time

NOTE

8.5

(H09-01)

Before using automatic gain adjustment, be sure to get the load inertia ratio correctly! NOTE



8-5

8.5.1

(H09-01) 0 31 0 31

8-3

Recommended rigidity class	Type of loading mechanism
Level 4 to 8	Some large machinery
Grade 8 to 15	Belts and other applications with low rigidity
Grade 15 to 20	Ball screw, direct connection and other applications with higher rigidity

NOTE

(H09-00=1) (H09-00=2)

1 (H09-00=1)

(H08-00 H08-02 H07-05) H09-01

8-4

Function code		Name
H08	00	Speed loop gain
H08	01	Velocity loop integral time constant
H08	02	Position loop gain
H07	05	Torque instruction filter time constant

2 (H09-00=2)

7-4 (H08-03 H08-05 H07-06) H09-01

8-5

Function code	Name	Instructions
H08-03	Second speed loop gain	
H08-04	The second velocity loop integral time constant	H08-04 is set to a fixed value of 512.00ms, which means that the second speed loop integral is invalid, and the speed loop is only controlled by proportion.
H08-05	Second position loop gain	
H07-06	The second torque instruction filters the time constant	

8-6

Function code	Name	Parameter values
H08-19	Speed feedforward gain	30.0%
H08-18	Velocity feedforward filtering time constant	0.50ms

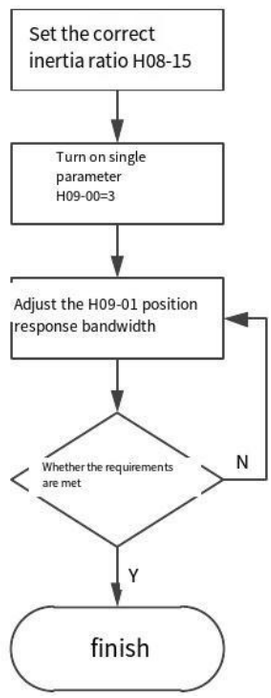
Function code	Name	Parameter values	Instructions
H08-08	The second gain mode is set	1	When positioning mode, the first gain (HO8-00-HO8-02, HO7-05) and the second gain (H0803-H08-05, H07-06) switch effective; Outside positioning mode, keep the original setting.
H08-09	Gain switching condition selection	10	When positioning mode, the gain switching condition is H08-09=10; Outside positioning mode, keep the original setting.
H08-10	Gain switching delay time	5.0ms	In positioning mode, the gain switching delay time is 5.0ms. Outside positioning mode, keep the original setting.
H08-11	Gain switching level	50	Gain switch level 50 when positioning mode; Outside positioning mode, keep the original setting.
H08-12	Gain switching delay	30	When positioning mode, gain switching delay is 30; Except positioning mode, keep the original setting

NOTE

(H09-01) H09-00 0

Function code	Name	Set range	Units	Features	Factory mode	Effective Time	Settings
H09-00	Self-adjusting mode selection	0- Parameter auto-tuning is invalid, adjust parameters manually 1- Parameter self-tuning mode, with a rigid meter to automatically adjust the gain parameters 2- Positioning mode, automatic adjustment of gain parameters with rigid meter	-	Set the mode of self-tuning	Run Set up now	Take effect	0
H09-01	Rigidity class selection	0-31	-	Set the level of rigidity level	Set up now	Take effect	12

8.5.2



8-6

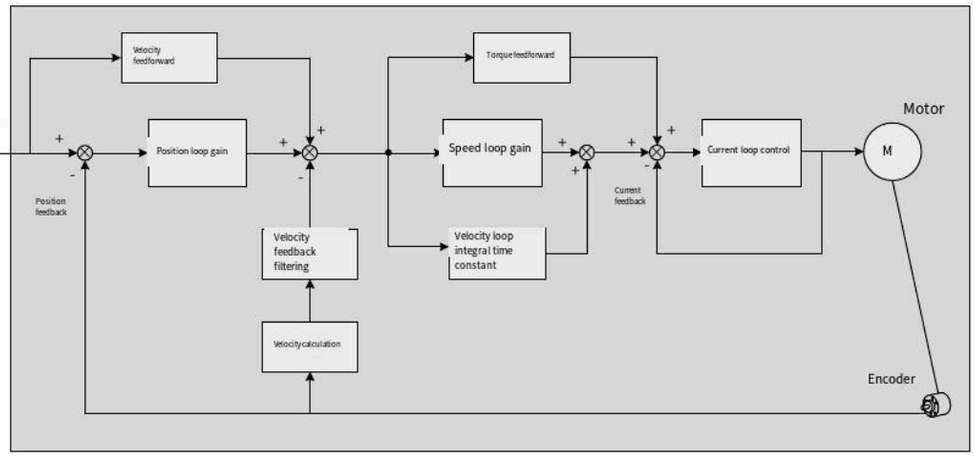
NOTE

H09-01 Hz 2PI H080-2 H09-01=12 H0802=40

8.6

8.6.1

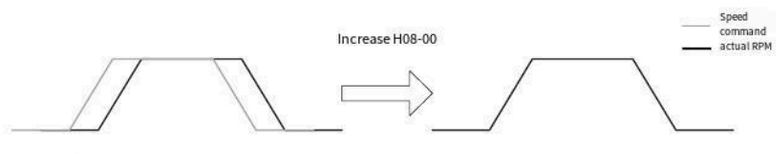
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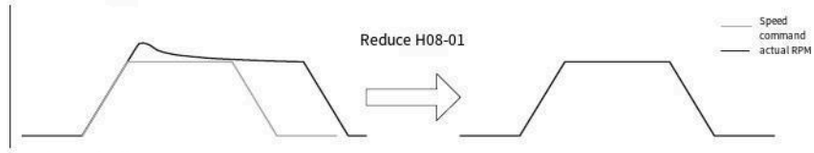
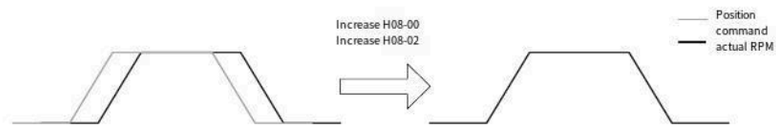
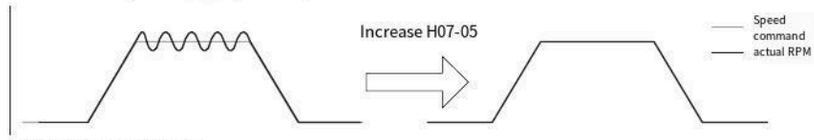


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and
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procedure	Function Code	Name	Adjustment instructions
8 and 7 1	H08-00	Velocity loop gain	Parameter action: Determines the maximum frequency at which the speed ring can follow the varying speed command. Under the premise that the load inertia ratio average (HO8-15) is set correctly, it can be considered that: Maximum following frequency of speed loop =H08-00  How to adjust: In the range of no noise and vibration, increasing this parameter can speed up the positioning time and bring better speed stability and stability Followability; Noise occurs, then reduce the parameter setting value; When mechanical vibration occurs, refer to the use of mechanical resonance suppression function.

procedure	Function Code	Name	Adjustment instructions
2	H08-01	Velocity loop integral time constant	Parameter action: Eliminate velocity loop deviation.  Method of adjustment: The following relation is recommended: 500H08-00×H08-01<1000 For example, when the speed loop gain H08-00=40.0Hz, the speed loop integral time constant should meet: 12.50ms < H0801 <25.00ms. Reducing the setpoint can strengthen the integral function and speed up the positioning time, but too small the setpoint is easy to cause mechanical vibration. Setting value is too high, will lead to the speed loop deviation can not return to zero. When H08-01=512.00ms, the integral is invalid.
3	H08-02	Position loop gain	Parameter action: Determines the highest frequency of changing position instructions that the position ring can follow. Maximum follow frequency of the position ring =H08-02  How to adjust: To ensure the stability of the system, the highest following frequency of the speed ring should be ensured to be 3~5 times that of the position ring, so: 2x 3 or less — 5 H08-02 — ≤ For example, if the speed loop gain H08-00=40.Hz, the position loop gain should meet: 50.2Hz < H08-02< 83.7Hz. Adjust according to the positioning time. Increasing this parameter can speed up the positioning time and improve the ability of the motor to resist external disturbance when it is stationary. The setting value is too high, which may cause the system instability and oscillation.
4	H07-05	Torque instruction filter Wave time constant	Parameter action: Eliminate high-frequency noise, inhibit mechanical resonance.  Method of adjustment: The cutoff frequency of the torque instruction low-pass filter should be guaranteed to be higher than 4 times the highest follow frequency of the speed ring, so: $\frac{1000}{2 * H07\,л - 05} > (H08\text{-}00) \times 4$ For example, when the speed loop gain H08-00=40.0Hz, the torque instruction filtering time constant should meet: H0705≤ 1.00ms. When H08-00 is increased, the vibration can be suppressed by adjusting H07-05. Please refer to the specific setting If the setting value is too large, the response of the current loop will be reduced; To suppress the vibration during shutdown, try to increase H08-00 and reduce H07-05; Motor stop state vibration is too large, can try to reduce H07-05 set value.

Function code	Name	Set range	Units	Features	Set effective mode time	Factory Settings
H08-00	Velocity loop gain	0.1 ~ 2000.0	Hz	Sets the size of the proportional gain of the speed loop	Run the immediate setting to take effect	25.0
H08-01	Velocity loop integral time constant	0.15-512.00	ms	Set the integral time constant of the speed loop	Run immediately the setting takes effect	31.83
H08-02	Position loop gain	0.0-2000.0	Hz	Sets the size of the proportional gain of the position loop	Run Immediately 40.0 setting takes effect	
H07-05	Torque instruction filter time constant	0.00-30.00	ms	Sets the size of the torque instruction filtering time constant	Run immediately the setting takes effect	0.79

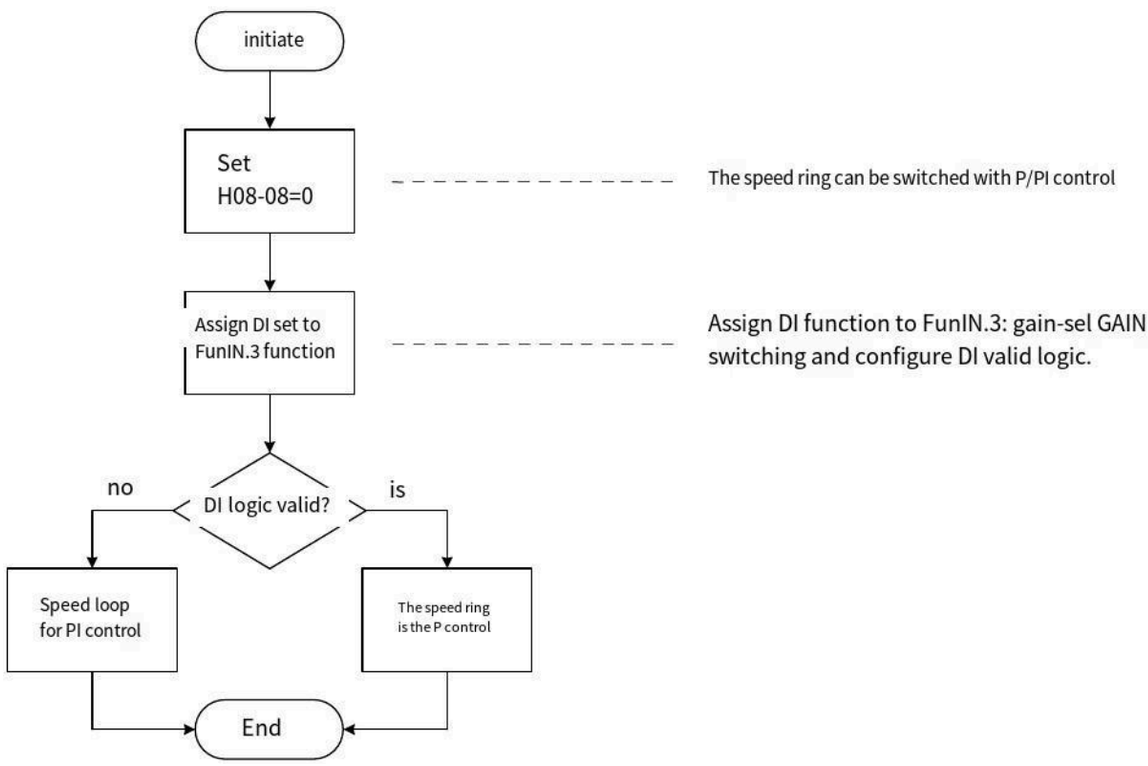
8.6.2

DI

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1 H08-08 0

(H08-00 H08-02 H07-05) DI 3(FunIN.3 GAIN SEL) /

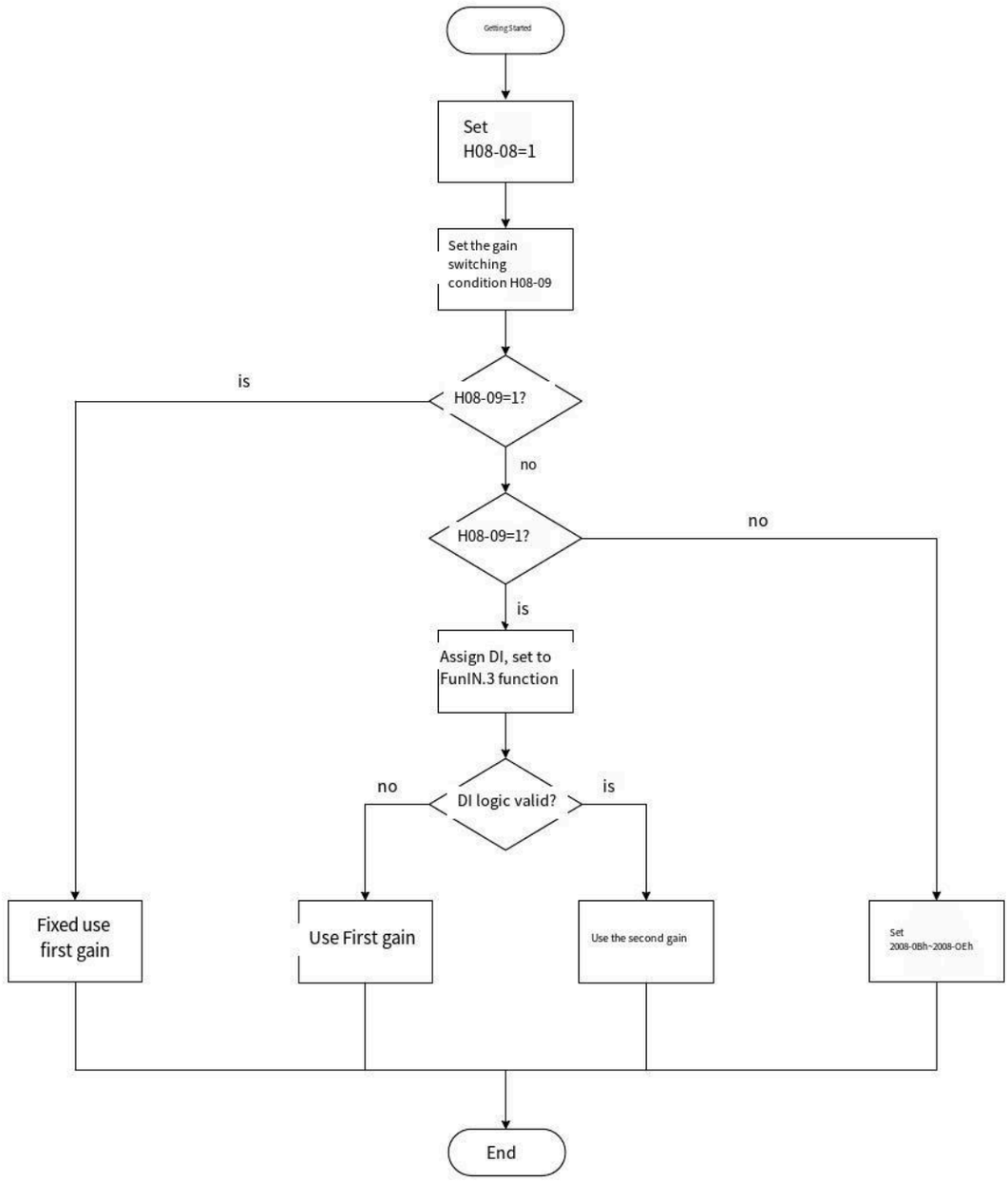


8-8 H08-08=0

2 H08-08 1

(H08-00 H08-02 H07-05) (H08-03 H08-05 H07-06)

H08-09 Settings.

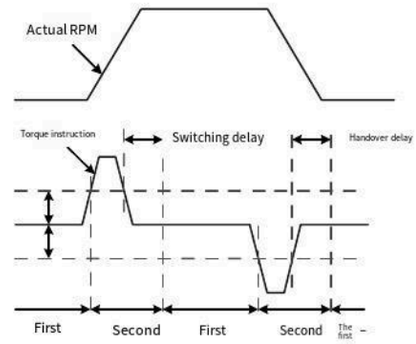
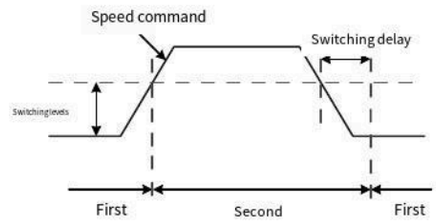
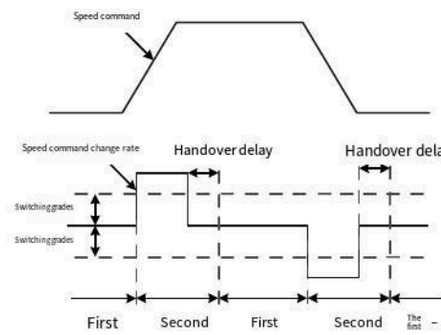
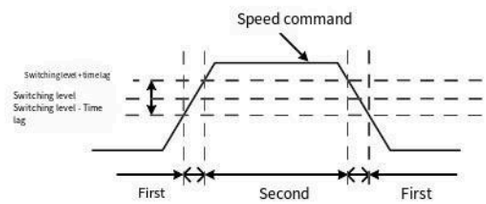
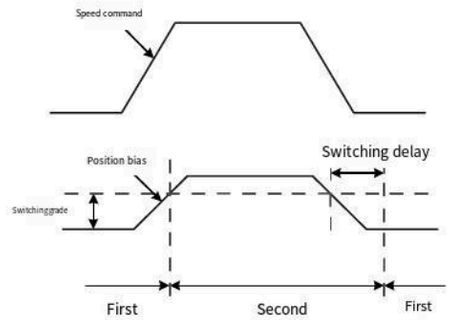


8-9 H08-08=1

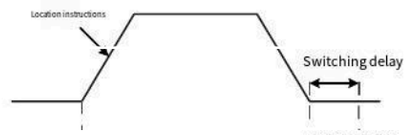
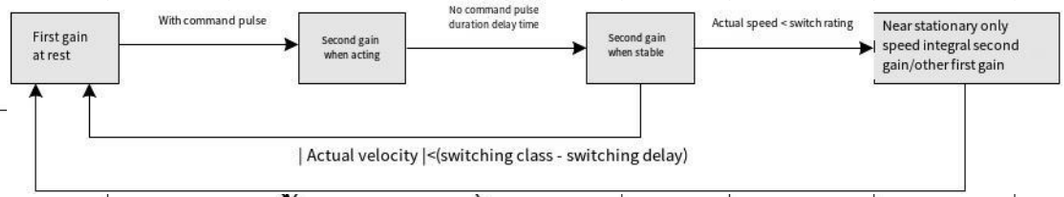
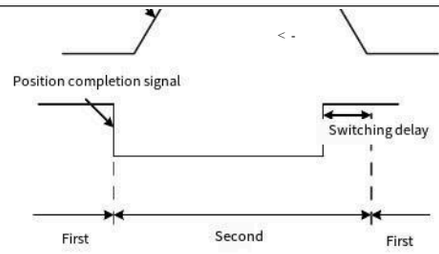
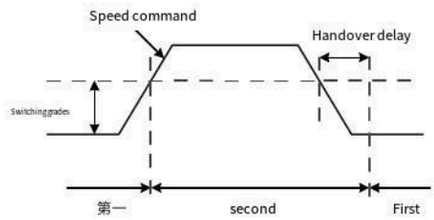
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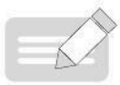
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Gain switching condition setting			Related parameters		
H08-09	Conditions	Schematic diagram	Delay time	Switching grades (H08-11)	(H08-12)
0	First gain fixed	-	Ineffective	Invalid	Invalid
1	Switching with external DI	-	Invalid	Invalid	Invalid

Gain switching condition setting			Related parameters		
2	Torque instruction		Valid	effective (%)	Valid (%)
3	Speed command		Valid	Valid	Valid
4	Speed command rate of change		Effective	Valid (10rpm/s)	Effective (10rpm/s)
5	Speed command high low speed threshold		Invalid	Valid (rpm)	Effective (rpm)
6	Position deviation		Effective	Valid Valid (encoder unit)	(encoder unit)

H08-10
NOTE

	Gain switch condition setting		Related parameters		
7	Location instructions		Valid	Ineffective	Invalid
					
					
8	Positioning complete		Valid	Ineffective	Invalid
6	Actual speed		Valid	Effective (rpm)	Valid (rpm)
10	Have location command actual speed	See notes for details	Valid	Valid Effective (rpm)	(rpm)



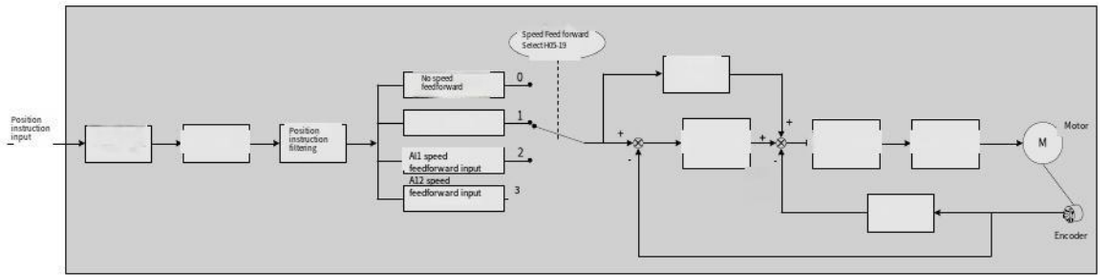
Function code	Name	Set range	Units	Features	Set to take effect Factory mode time	Settings
H08-08	The second gain mode is set	0- First gain fixed, use outside DI does P/PI switching 1- Set the use gain switch according to the conditions of H08-09	-	Set the mode for the second gain	Run the immediate setting to take effect	1
H08-09	Gain switching condition selection	0- First gain fixed 1- Use external DI for switching 2- Torque instruction is large 3- Speed instruction is large 4- Speed command change rate is large 5- Speed instruction High low speed threshold 6- Position deviation is large 7- Have position instructions 8- Positioning complete 9- Actual speed is large 10- Have position command + actual speed	-	Set the conditions for gain switching	Run the immediate setting to take effect	0
H08-10	Gain switching delay time	0 ~ 10	-	Set the delay time for the gain switch	Run now Setting takes effect Run immediately	5.0
H08-11	Gain switching level	1-1000	By switching condition	Set the level of the gain switch	The setting takes effect immediately.	
H08-12	Gain switching delay	0-20000.	By switching condition	Set the time lag of the gain switch	The setting takes effect immediately	30
H08-13	Position gain switching time	0.0 ~ 100.0	ms	Set the switching time of the position loop gain	3.0 Setting Takes Effect	

8.6.3

name	Features	Applicable occasion	The effect of excessive filtering
Pulse input pin filtering	Prevent interference caused by the servo receiving pulse number is not accurate	The system wiring is not standardized; Strong environmental interference;	The number of pulses received by the servo is less than the number of pulses sent by the upper computer
Position instruction filtering	Position instruction filtering is to filter the position instruction (encoder unit) after the electronic gear ratio or frequency doubling, so that the motor runs smoother and reduces the impact on the machinery.	The position instruction output by the host computer is not processed by acceleration and deceleration; Pulse instruction frequency is low; The electronic gear ratio is more than 10 times.	The delay of response increases
Analog input filter	To prevent motor instruction fluctuation caused by the instability of the analog input voltage, it can also weaken the motor error caused by the interference signal.	The system wiring is not standardized; Strong environmental interference;	And the delay of response increases

8.6.4

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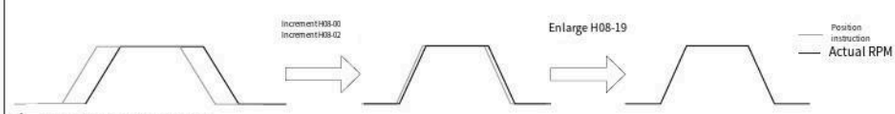
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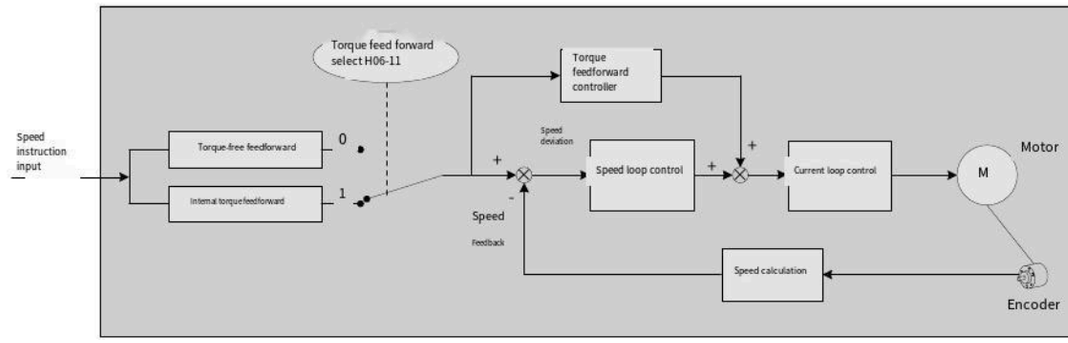
H05-19( ) 0

2

Function code	Name	Set Value	Remarks
		0- No speed feed forward (H08-19) (H08-18)	-
			Use the speed information corresponding to the position instruction (encoder unit) as the source of the speed

Function code	Name	Adjustment instructions
H05-19		
H08-18	Speed feedforward filter time constant	 ◆ Parameter function: Increasing H08-19 can improve the response, but speed overshoot may occur during acceleration and deceleration; Reducing H08-18 can restrain the speed overshoot during acceleration and deceleration; Increase H08-18, can suppress the position instruction update cycle and the driver control cycle is relatively long, the position instruction pulse frequency is not uniform and other cases of noise, restrain the positioning signal jitter;
H08-19	Velocity front Feed gain	◆ Adjustment method: When adjusting, first, set H08-18 as a fixed value; Then, the set value of H08-19 is gradually increased from 0 until a certain set value, the speed feedforward effect. When adjusting, HO8-18 and HO8-19 should be adjusted repeatedly to find a good balanced setting

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H06-11( ) 1

Function code	Name	Set Value	Remarks
H06-11	Torque feedforward control selection	0- torque-free feedforward	-
		1- Internal torque feedforward	Use the speed instruction as the source of the torque feedforward signal. In position control mode, the speed command comes from the output of the position controller.

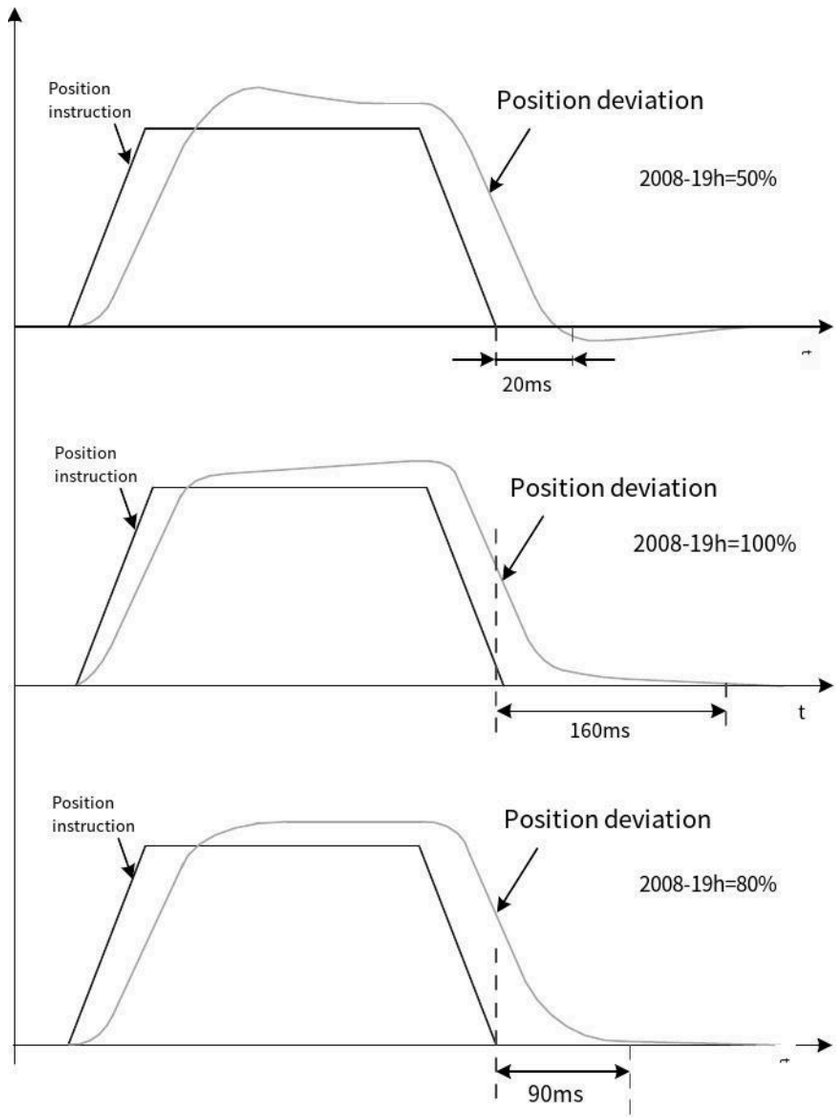
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Function code	Name	Adjustment instructions
H08-20	Torque feedforward filter time constant	◆ Parameter action: Increase H08-21, can improve the response, but may produce overshoot when acceleration and deceleration; Reducing H08-20 can restrain overshoot during acceleration and deceleration; Increase H08-20, can suppress the noise; ◆ Adjustment method: When adjusting, first, leave HO8-20 as the default; Then, the HO8-21 set value is gradually increased from 0 until a certain set value, the torque feedforward effect. When adjusting, HO8-20 and HO8-21 should be adjusted repeatedly to find a good balanced setting
H08-21	Torque feedforward gain	Refer for details

8.6.5

(Pseudo-Di erential-Forward-Feedback Control, PDFF

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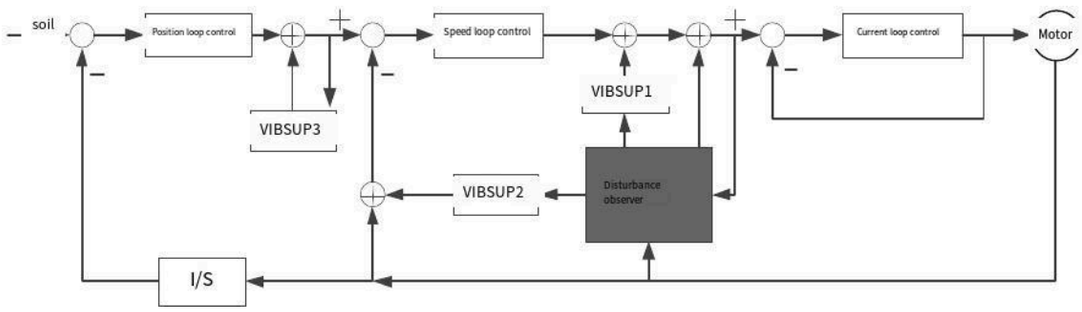
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Function code	Name	Adjustment instructions
H08-24	Pseudo differential feedforward control coefficient	Parameter action: In non-torque control mode, change the control method of the speed loop. Adjustment method: HO8-24 set too small, the speed loop response becomes slow; When the speed feedback is overshoot, the H08-24 is gradually reduced from 100.0 until a certain set value, the pseudo-differential feedforward control is effective. When H08-24=100.0, the velocity loop control method remains unchanged and is the default proportional integral control.

8.6.6

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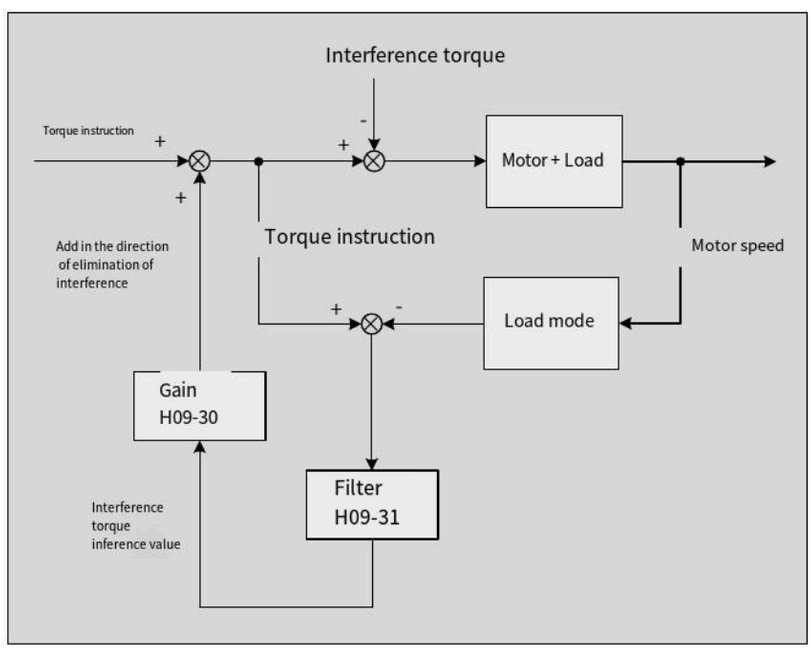
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Function code	Name	Adjustment instructions
H08-31	Disturbance observation cutoff frequency	The higher the value, the faster the response to the disturbance, but too high is prone to vibration
H08-32	Disturbance observation compensation coefficient	The compensation percentage of the observed compensation value
H08-33	Perturbation of observed inertia correction	When the inertia setting is more real, this value does not need to be modified, and the acting inertia is multiplied by the set inertia. No modification is recommended

Function code	Name	Set range	Units	Features	Settings	Effective	Factory mode
						Time	
H08-31	Disturbance observation cutoff frequency	10 to 1700	1Hz	Set the disturbance observation cutoff frequency	Set up run	Set up Now	600
H08-32	Disturbance observation compensation coefficient	0-100.	1%	Percentage of compensation of the observed compensation value	Effective run	Set up now	0
H08-33	Perturbation of observed inertia correction	1-10000	1%	Set the perturbation observation inertia correction size	Effective run	Set up now	100
						Take effect	

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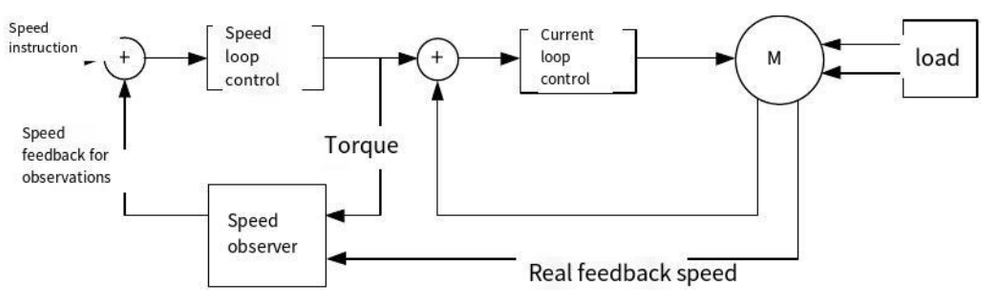


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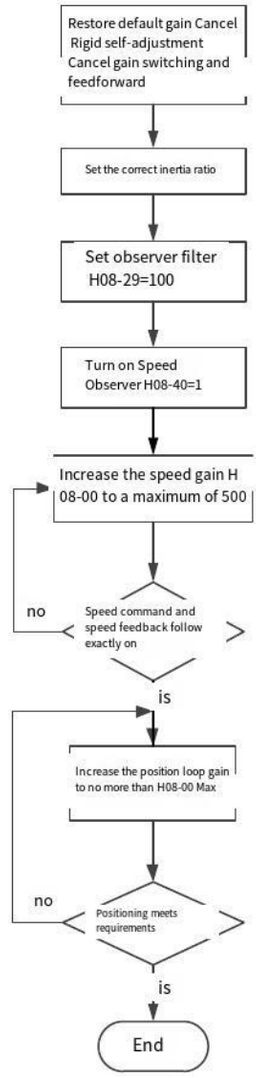
Function code	Name	Adjustment instructions
H09-30	Torque disturbance compensation gain	Parameter action: Increasing H09-30, that is, increasing the proportion of compensating torque superimposed on the torque instruction, increases the ability to suppress the disturbance, but makes more noise Increase H09-31, can reduce noise; Reducing H09-31 can detect and estimate the external disturbance torque with short delay time; Thus, the ability to suppress the disturbance is improved, but the noise is larger How to adjust: When adjusting, first, set H09-31 as the larger value; Then, the set value of H09-30 is gradually increased from 0 until a certain set value, the disturbance observer gets the effect; Finally, under the premise that the disturbance observer is always effective, the H09-31 setpoint is gradually reduced. When adjusting, H09-30 and H09-31 should be adjusted repeatedly to find a good balanced setting
H09-31	Torque disturbance observer filtering time constant	

Function code	Name	Set range	Units	Features	Settings method	Effective Time	Settings
H08-18	Velocity feedforward filtering time constant	0.00 ~ 64.00	ms	Set the filtering time constant for the speed feedforward gain	Run Set up now	Effective run	0.00
H08-19	Speed feedforward gain	0.0 ~ 100.0	%	% 2 Set the size of the speed feedforward gain	Set up now	Effective run	0.0
H08-20	Torque feedforward filter time constant	0.00-64.00	ms	Set the filtering time constant of the torque feedforward gain	Set up now	Effective run	0.50
H08-21	Torque feedforward gain	0.0 ~ 200.0	ms	Sets the size of the torque feedforward gain	Effective run	Now	0.0 Settings
H08-24	Pseudo differential feedforward control coefficient	0.0 ~ 100.0	%	Set the pseudo-differential feedforward control factor	Set up now	Effective Run Take effect	100.0
H09-30	Torque disturbance compensation gain	0 ~ 100.0	%	Set the gain of the disturbance torque compensation	Run Set up now	Take effect	0.0
H09-31	Torque disturbance observer filtering time constant	0.00 ~ 25.00	Ms	Set the filtering time constant of the disturbance observer	Run Set up now	Take effect	0.50

8.6.7



1

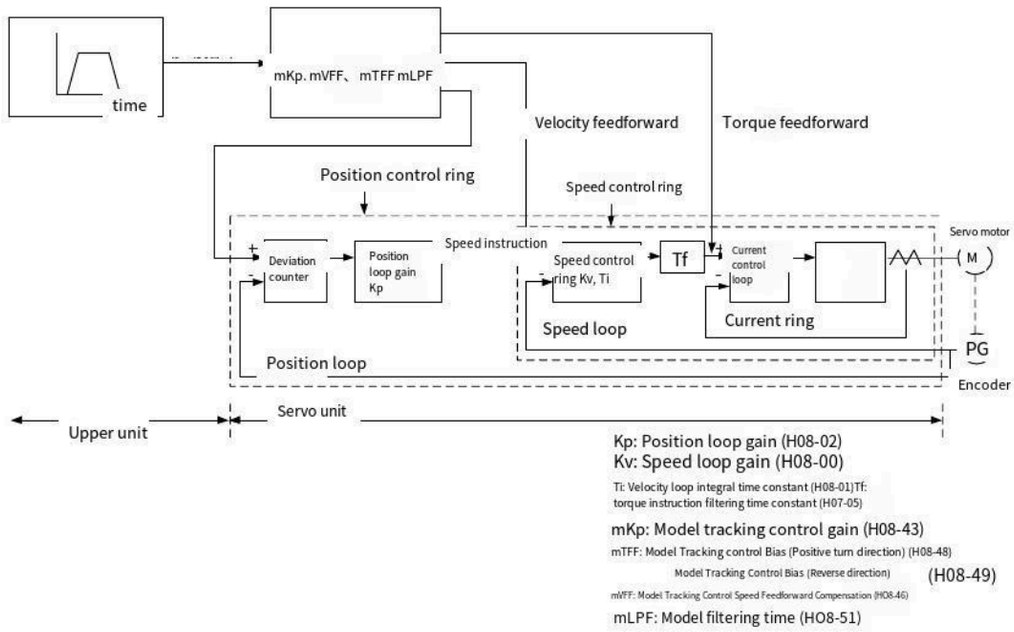


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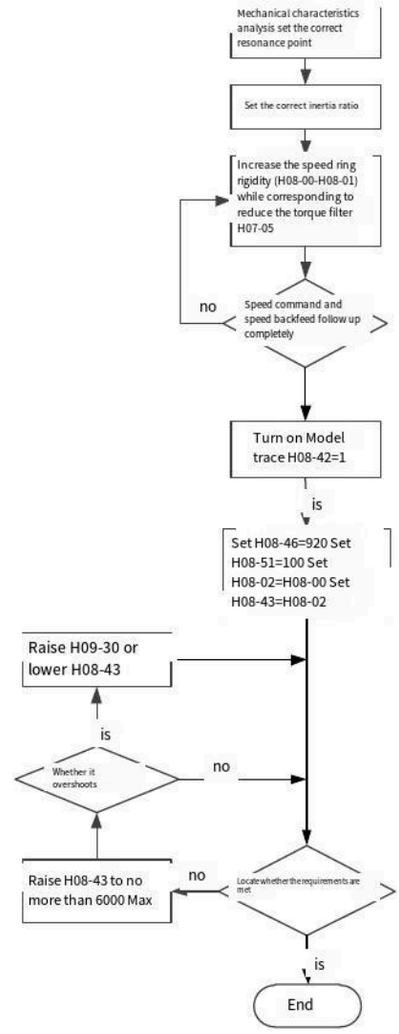
argument	Name	Minimum unit	Set range	Factory defaults	How to set	
H08-00	Velocity loop gain	0.1Hz	1-20000.	250	Operation setting	
H08-27	Velocity observation cutoff frequency	1Hz	10-200010	170	Operation setting	Take effect immediately.
H08-28	Velocity observation inertia correction velocity observation filtering Time	1%	~ 10000	100	Operation setting	Take effect immediately
H08-29	velocity observation	0.01ms	0-2000.	80	operation setting	
H08-40	Enabled	1	0-1	0		Effective immediately

8.6.8

ITune ETune


time
mKp. mVFF、mTFF mLPF
Velocity feedforward
Torque feedforward
Position control ring
Speed control ring
Servo motor
Deviation counter
Position loop gain Kp
Speed instruction
Speed control ring Kv, Ti
Tf
Current control loop
M
Speed loop
Current ring
PG
Position loop
Encoder
Servo unit
Upper unit
Kp: Position loop gain (H08-02)
Kv: Speed loop gain (H08-00)
Ti: Velocity loop integral time constant (H08-01)Tf: torque instruction filtering time constant (H07-05)
mKp: Model tracking control gain (H08-43)
mTFF: Model Tracking control Bias (Positive turn direction) (H08-48)
Model Tracking Control Bias (Reverse direction) (H08-49)
mVFF: Model Tracking Control Speed Feedforward Compensation (H08-46)
mLPF: Model filtering time (HO8-51)

1


Mechanical characteristics analysis set the correct resonance point
Set the correct inertia ratio
Increase the speed ring rigidity (H08-00-H08-01) while corresponding to reduce the torque filter H07-05
no
Speed command and speed backfeed follow up completely
Turn on Model trace H08-42=1
is
Set H08-46=920 Set
H08-51=100 Set
H08-02=H08-00 Set
H08-43=H08-02
Raise H09-30 or lower H08-43
is
Whether it overshoots
no
Raise H08-43 to no more than 6000 Max
no
Locate whether the requirements are met
is
End

2

argument	Name	Minimum unit	Set range	Factory defaults	How to set	Effective method
H07-05	Torque instruction filter time constant	0.01ms	0-3000.	79	Run Settings	Effective immediately
H08-00	Velocity loop gain	0.1Hz	1-20000.	250	Run Settings	Effective immediately, effective immediately
H08-01	Velocity loop integral time constant	0.01ms	15-512001-20000	3183	Run Setting	
H08-02	Position loop gain	0.1Hz		400	Run Setting Stop Run	
H08-42	Model control is enabled	1	0-1	0	Setting Run	Effective immediately
H08-43	Model gain Model	0.1	0 ~ 10000	400	Setting Run	Take effect immediately
H08-46	Feedforward model filtering time 2	1	0 ~ 10240-2000	950	Setting Run	Take effect immediately
H08-51		0.01ms		0	Setting Run setting	
H09-30	Torque disturbance compensation gain	0.1%	- 1000-1000	0		Effective immediately.

8.7

= =

8.7.1

1 H08-15

2

1

Function code	Name	Features	Default
H07-05	Torque instruction filter time constant speed loop gain	Set the torque instruction filtering time constant	0.79ms
H08-00		Set the speed loop proportional gain	25.0Hz
H08-01	Velocity loop integral time constant position loop gain	Setting the integral time constant of the speed loop sets the position loop proportional gain	31.83ms
H08-02			40.0Hz

2

Function code	Name	Features	Default
H07-06	The second torque instruction filters the time constant	Set the torque instruction filtering time constant	0.79ms
H08-03	Second speed loop gain	Set the speed loop proportional gain Set the integral time constant of the speed loop Set the mode of the position loop proportional gain Set the condition of the gain switching Set the delay time of the gain switching Set the level of the gain switching Set the delay of the gain switching set the switching time of the position loop gain	40.0Hz
H08-04	Second velocity loop integral time constant second position loop gain		20.00ms
H08-05			64.0ms
H08-08	The second gain mode sets the gain switching condition		1
H08-09			0
H08-10	Gain switching delay time		5.0ms
H08-11	Gain switching class Gain switching delay		50
H08-12			30
H08-13	Position gain switching time		3.0ms

3

Function code	Name	Features	Default
H08-18	Velocity feedforward filter time constant velocity feedforward gain	Set the filtering time constant for the speed feedforward signal	0.50ms
H08-19		Set Speed feedforward gain Set the filtering time constant of the torque feedforward signal Set the torque feedforward gain	0.0%
H08-20	Torque feedforward filter time constant		0.50ms
H08-21	Torque feedforward gain		0.0%

Function code	Name	Features	Default
H08-22	Speed feedback filter option	Set the Speed feedback filtering feature	0
H08-23	Velocity feedback low-pass filter cutoff frequency	Set the cutoff frequency of the first-order low-pass filter for speed feedback	4000Hz
H08-24	Pseudo differential feedforward control coefficient	Set the coefficients of the PDFF controller	100.0%
H09-30	Torque disturbance compensation gain	Set the gain of the disturbance torque compensation	0.0%
H09-31	Torque disturbance observer filtering time constant	Set the filter time constant of the disturbance observer Set the mode of	0.5ms
H09-04	Low frequency resonance suppression mode selection	low frequency resonance suppression	0
H09-38	Low resonance frequency	Set the frequency of the low frequency resonance suppression filter	100.0Hz
H09-39	Low frequency resonance frequency filtering Settings	Set the filter setting of the low frequency resonance suppression filter	2
H09-40	Low frequency resonance denominator frequency and molecular frequency ratio	Used to reduce the position instruction delay caused by low frequency suppression, the larger the value, the smaller the delay	12
HOA-16	Low frequency resonance position deviation judgment threshold	Set how many pulses above the position fluctuation is considered a low frequency resonance	0.0005Rev

3

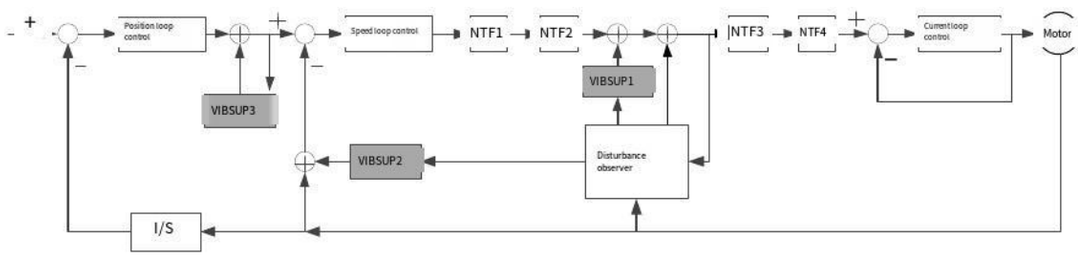
Function code	Name	Features
H07-05	Torque instruction filter time constant	Set the torque instruction filtering time constant
H08-00	Velocity loop gain	Set the speed loop proportional gain
H08-01	Velocity loop integral time constant	Set the integral time constant of the speed ring
H08-02	Position loop gain	Set Position Loop Proportional gain Set speed feedforward gain
H08-19	Speed feedforward gain	

8.7.2

(H08-02, H08-05)

8.7.3

8.8



NTF1 4 1 4 800Hz 8K

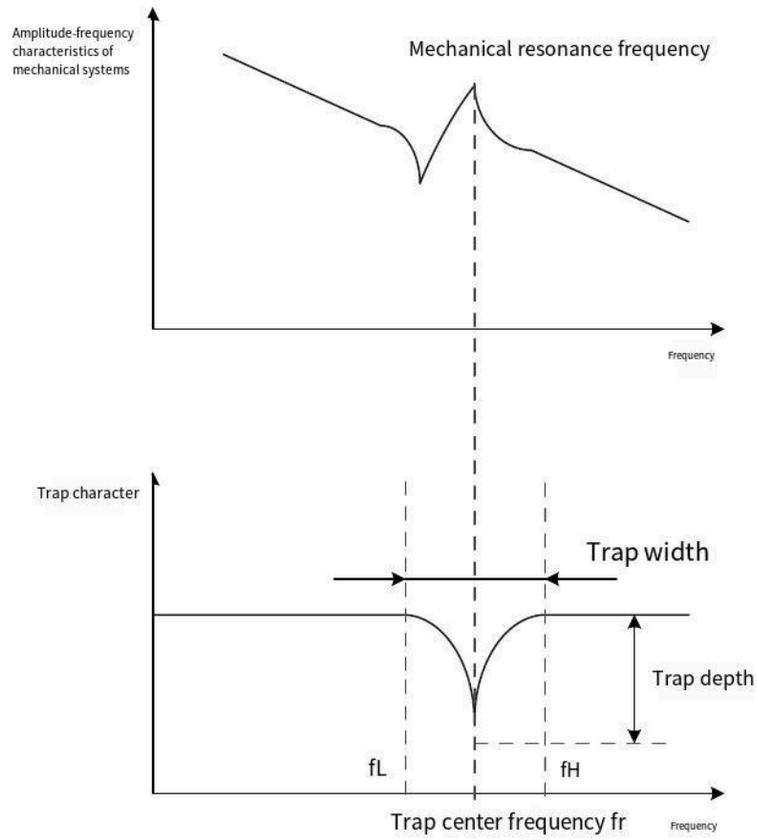
VIBSUP1 500HZ 8K VIBSUP2 300hz 8K
VIBSUP3 300hz 8K 1/S

argument	Name	Factory Defaults	Units	Minimum	Maximum	Setting method	Effective method
H08-34	Medium and high frequency suppression phase modulation1		1%	0	1600	Run	
H08-35	Medium and high frequency suppression frequency 1	0	0 1Hz	0	1000	Settings Run	Take effect
H08-36	Medium high frequency suppression compensation 1	0	1%	0	100	Settings Run	immediately take effect
H08-37	Intermediate frequency suppression phase modulation 1	0	1%	0	1600	Settings Run	immediately take effect
H08-38	If suppress frequency 1	0	1Hz	0	800	Settings run	immediately take effect
H08-39	If suppression compensation 1	0	1%	0	100	Settings run	immediately
H08-53	Low and medium frequency jitter suppression frequency 3	0	0.1Hz	0	6000	Settings run	
H08-54	Low and medium frequency jitter suppression compensation 3	0	1%	0	200	Settings run	
H08-56	Low and medium frequency jitter suppression phase modulation 3	300	1%	0	1600	Settings	With immediate effect

NOTE 2

8.8.1 1 (H07-05 H07-06) fc(Hz)=1/[2 H07-05(ms) 0.001

2



8 to
14

4 3 (H09-02=1 2)

Eight to nine
4000Hz

Items	Manual trap		Manual/adaptive trap	
	First set of traps	The second set of traps	Third set of traps	The fourth set of traps
Frequency width rating	H09-12	H09-15	H09-18	
	H09-13	H09-16	H09-19	H09-21 H09-22 H09-23
Depth class	H09-14	H09-17	H09-20	

NOTE

8-15

1

1 H09-02( ) 1 2

H09-02 1 H09-02 2

2

3

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2

(H09-02=0)

30min H09

H09-02 0

4

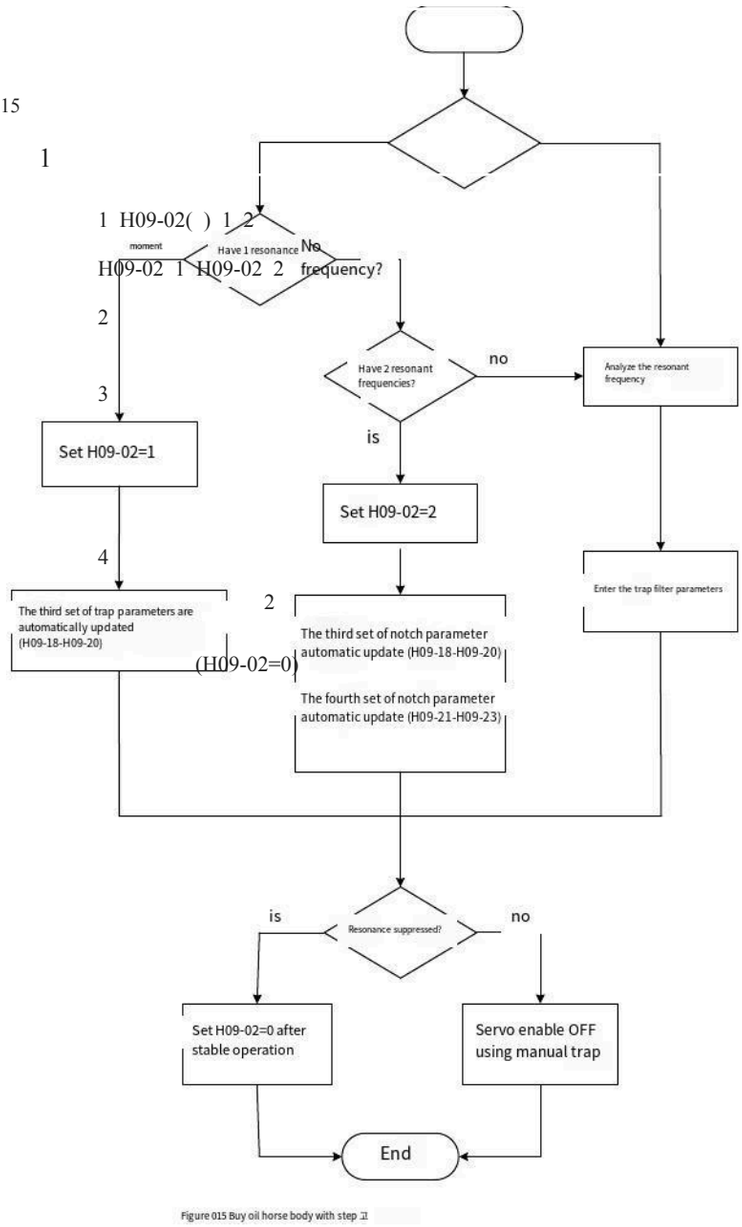


Figure 015 Buy oil horse body with step 江



NOTE

30min OFF 300Hz

2

1

H09-02=3

H09-24

2 1

3

1

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4

3

f_H-f_L

=

f_T

f_T

fH-fL

-3dB

2

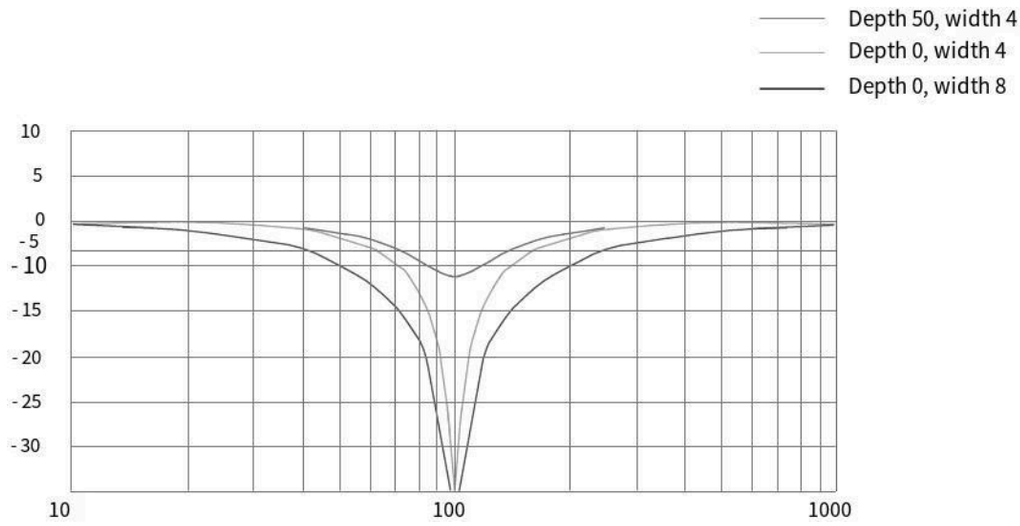
4

0

100

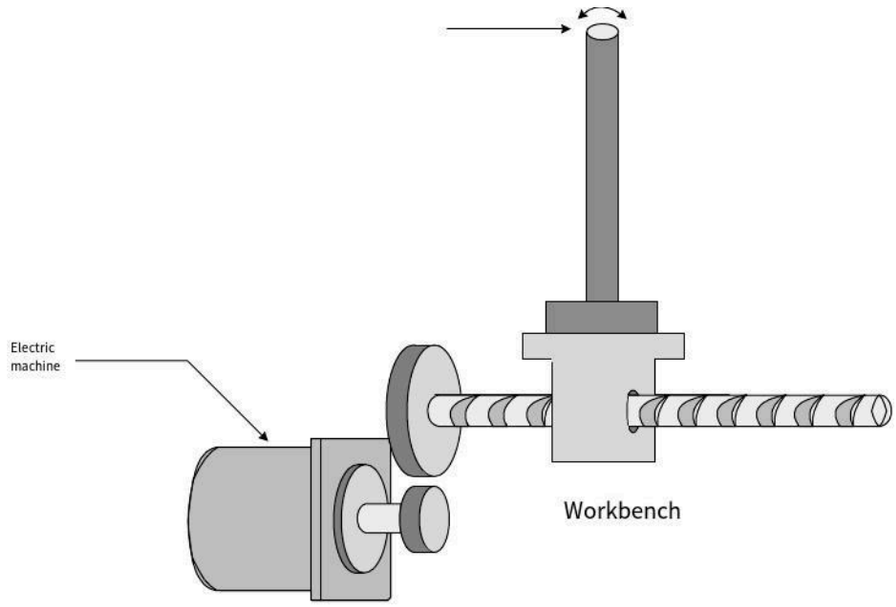


NOTE



Function code	Name	Set range	Features	Set effective outgoing time setting		
H09-02	Adaptive trap mode selection	0- The third and fourth adaptive notch parameters are no longer updated 1-1 adaptive traps are valid, and the third set of traps parameters are based on the vibration The dynamic situation is updated in real time 2 to 2 adaptive traps are valid, the third and fourth set of trap parameters 1 Set the real-time update of the adaptive trap according to the vibration situation 3- Test the resonant frequency only, as shown in H09-24 4- Clear adaptive traps and restore the values of Group 3 and 4 traps to factory condition.	Modes	Run Immediate Settings take effect		0
H09-12	First set of trap frequencies	50-4000.	Set the frequency of the first set of traps	Run immediately the setting takes effect		4000
H09-13	The first group of trap width grades	0 to 10	Set the width rating of the first set of traps	Run the Settings immediately to take effect		2
H09-14	First group of notch depth class	0-99.	Set the attenuation level of the first set of traps			0
H09-15	The second set of notch frequencies	50 ~ 4000	Set the frequency of the second set of traps			4000
H09-16	The second group of trap width classes	0 to 10	Set the width rating of the second set of traps	Set the frequency to take effect immediately.		2
H09-17	The second set of notch depth grades	0-99.	Set the attenuation level of the second set of traps			0
H09-18	The third set of trap frequencies	50-4000.	Set the frequency of the third set of traps	Set the frequency to take effect immediately.		4000
H09-19	The third group of trap width classes	0 to 10	Set the width rating for the third set of traps	Set the frequency to take effect immediately		2
H09-20	Third group of notch depth class	0-99.	Set the attenuation level of the third set of traps			0
H09-21	The fourth set of trap frequencies	50 ~ 4000	Set the frequency of the fourth set of traps			4000
H09-22	The fourth group of trap width classes	0 to 10	Set the width rating for the fourth set of traps	Run now Run immediately the setting takes effect		2
H09-23	The fourth group of notch depth class	0-99.	Set the attenuation level of the fourth set of traps			0
H09-24	Resonance frequency identification results	-	The identification result of | resonance frequency when H09-02=3 is displayed	-	-	0

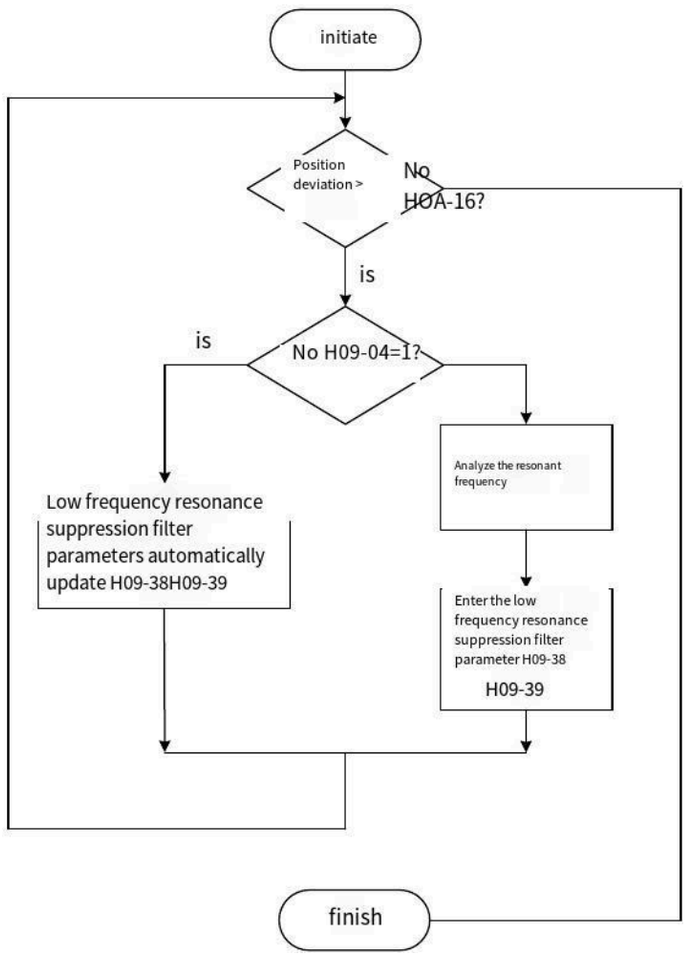
8.8.2



8-17

100Hz

7.6.1



8 to
18

1 H0A-16

H0A-16

2 H0 -04

2

1 H09-04=1

H09-38( ) H09-39(

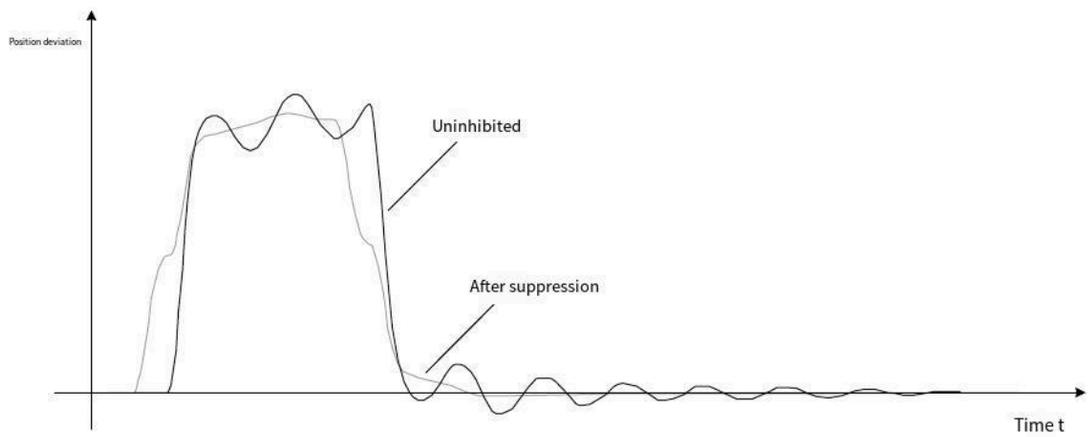
)

2 H09-04=0

H09-38( ) H09-39

3 H0A-16

2) 3)



8-19

Function code	Name	Set range	Units	Features	Set method	Effective Time	Settings
H09-04	Low frequency resonance suppression mode selection	0- Manually set the parameters of the low frequency resonance suppression filter 1- Automatically set the parameters of the low frequency resonance suppression filter	-	Set the mode of low frequency resonance suppression	Run Set up now	Take effect	0
H09-38	Low resonance frequency	1.0-100.0	Hz	Set the frequency of the low frequency resonance suppression filter	Run Set up now	Take effect	100.0
H09-39	Low frequency resonance frequency filtering Settings	0 ~ 10	-	Set the width rating of the low frequency resonance suppression filter	Run Set up now	Effective run	2
HOA-16	Low frequency resonance position deviation judgment threshold	1-1000.	P	Setting how many pulses above the position deviation is considered a low frequency resonance	Set up now	Take effect	5

8.8.3

1

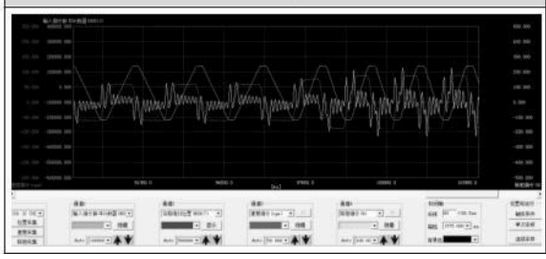
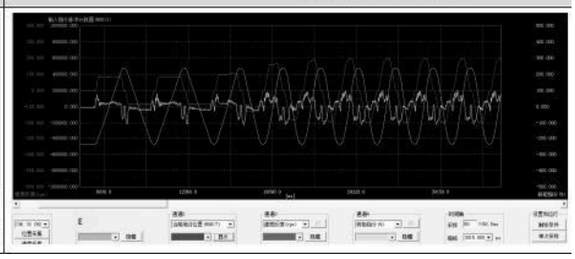
50Hz

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Function code	Definitions	Default values	Range	Detailed explanation
H09-44	Terminal low frequency suppression 1 frequency	0.0	0 ~ 200.0 Hz	Set to vibration frequency to turn on suppression, set to 0 to turn off.
H09-45	Terminal low frequency suppression 1 response	1.00	0.01 ~ 10.00	Increasing this value can reduce the delay caused by inhibition and improve responsiveness. If increased by 10% each time, too much will cause vibration.
H09-47	End low frequency suppression 1 width	1.00	0 ~ 2.00	Increasing the value can extend the frequency range of the suppression, and is used for occasions where the vibration frequency changes during load operation. Reducing the value can improve the responsiveness, but the low frequency vibration suppression ability becomes worse. Change 10% at a time, not less than 0.7 is recommended.
H09-49	Terminal low frequency suppression 2 frequency	0.0	0-200.0Hz	Set the suppression function to turn on the vibration frequency and turn off when set to 0.
H09-50	Terminal low frequency suppression 2 response	1.00	0.01 ~ 10.00	Increasing this value can reduce the delay caused by inhibition and improve responsiveness. If increased by 10% each time, too much will cause vibration.
H09-52	End low frequency suppression 2 width	1.00	0-2.00	Increasing this value can extend the frequency range of the suppression, which is used in the case that the vibration frequency changes during the load operation. Reducing the value can improve the responsiveness, but the low frequency vibration suppression ability becomes worse. Change 10% at a time, not less than 0.7 is recommended.

3

preinhibition	After inhibition
	

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0 4kHz

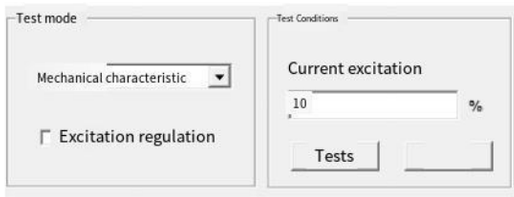
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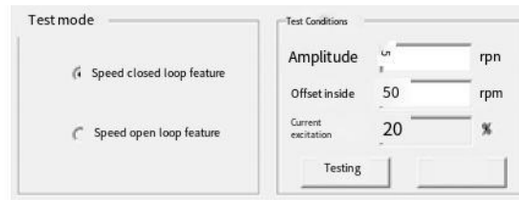
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1

V1.3 1-20



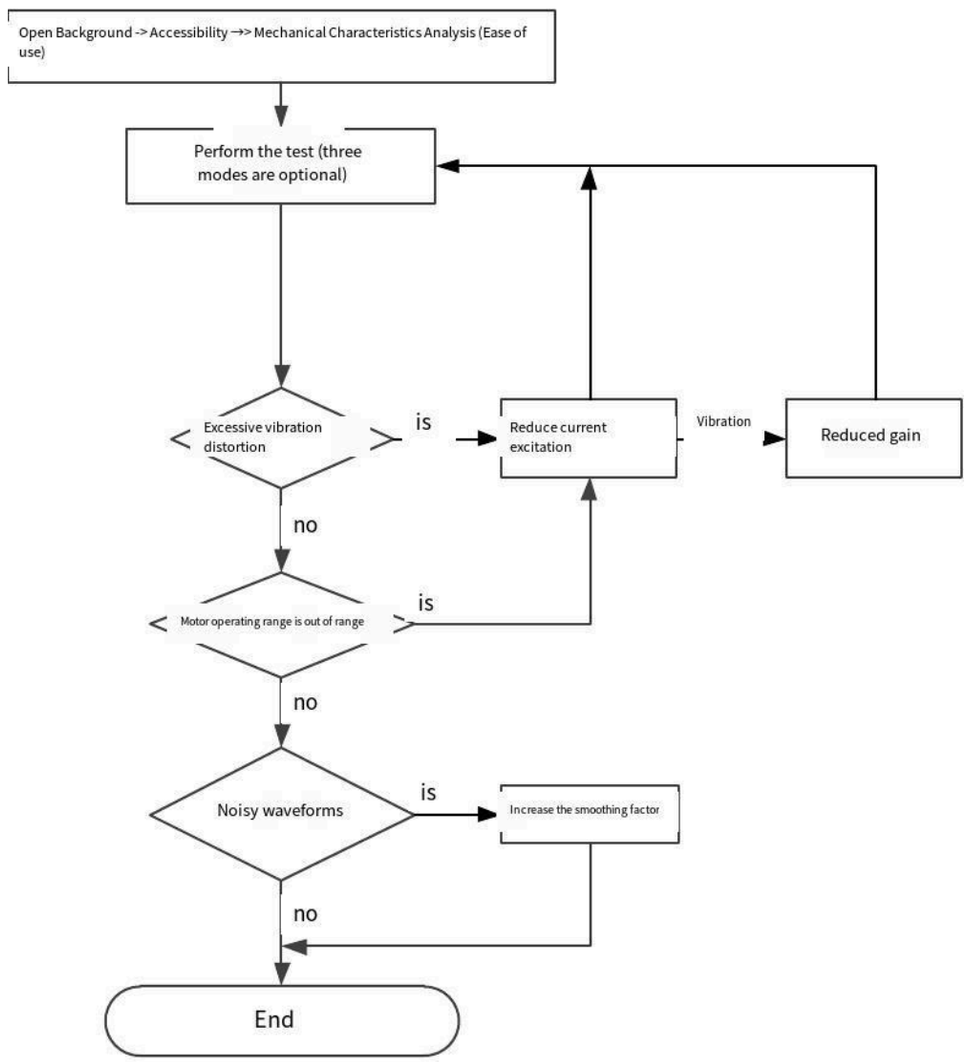
Ease of use Mechanical properties interface



Non-ease-of-use mechanical interface

8
and
20

2



8-21

NOTE

1. 5

2. Bode

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8-22

Trouble code	Cause	Treatment measures
	The vibration cannot be suppressed, resulting in vibration when the gain is lowest	Eliminate vibration by turning on vibration suppression first
Er.600	Large load inertia fluctuation: 1) Generally due to the motion curve acceleration and deceleration is not fast enough 2) Because the mechanical connection is loose, the mechanism is eccentric	1) Please increase the maximum running speed, reduce the acceleration and deceleration time, the screw mechanism can shorten the running distance; 2) Need to check the mechanical installation.
	H09-26 response setting is too high, and the set inertia range is relatively large (the actual inertia is relatively small), then the setting does not match, resulting in vibration.	If the actual maximum inertia is not large, you can set the maximum inertia of H09-29 near the actual maximum, then it should be able to improve a lot of response, then the minimum inertia of H09-28 is recommended not to change to maintain 0. Of course, if the motor shaft connection part rigidity is very good, it can be set to 1 times or less than 1 times or so, try not to set too large, this value is set large and easy to vibrate.
When the actual inertia is relatively large, the response setting is too large and this problem may occur in Er.660		If the actual maximum inertia is very large, according to the actual maximum inertia set H09-29, the response H0926 can not be improved, H0929 can be appropriately reduced in exchange for a larger response level without alarm, but at this time the positioning effect may be overshot, according to the actual requirements. At this time, the minimum inertia of H09-28 is recommended to maintain the default value of 0.
	Acceleration and deceleration time is too short, resulting in serious saturation and thus misadjustment error	For severe saturation, increase the ramp time before increasing the gain
	The mechanical installation is not good, the connection part is loosened seriously, and the vibration frequency changes frequently	For mechanical loosening, you can check whether the mechanical connection part is reliable and firm, and re-assemble and tighten it
Er.661	Vibration or positioning does not meet the requirements (generally in the case of large inertia), and the gain is not satisfied at the lowest	Manually adjust the gain

Start-up procedure	Symptom of failure	Causes	Confirmation Method
Switch on the control power supply (L1C L2C)	The nixie tube does not light up or show "ry"	1. The control power supply voltage is faulty	After unplugging CN1, CN2, CN3, CN4, the fault still exists Measure the AC voltage between L1C and L2C.
		2. The burn program terminal is shorted	Check the terminal of the burning program to confirm whether it is shorted.
		3. The servo drive is faulty	-
Main power supply (RST)	Panel display "Er.xxx"	Refer to section 10.2 to find the cause and troubleshoot.	
	After the above faults have been rectified, the panel should display "ry".		

1, 2, 3

3

1 (NO.1)

1 (NO.1)

2 (NO.2)

3 (NO.3)

200D-02h=1 ( )

DI 2(FunIN.2 ALM-RST)

0x6040 bit7 bit7

NO.1, NO.2

NO.3
1
2

Function code	Name	Set range	Features	Setting method	Effective Time	
200Dh-02h	Fault reset	0- No operation 1- Fault and warning reset	For resettable faults and warnings, make the panel stop the fault display. Return to "0- No action" immediately after the reset is complete.	Set up downtime Set up now	Take effect	0

encoding	Name	Feature name	Feature
FunIN.2	ALM-RST	Fault and warning reset signal	This DI function is valid for edges, and is invalid when the level is continuously high/low. According to the alarm type, the servo can continue to work after some alarms are reset. When assigning to low speed DI, if the DI logic is set to the level is valid, it will be forced to be valid along the change. The effective level change must be kept above 3ms, otherwise the fault reset function will be invalid. Do not assign the fault reset function to fast DI, otherwise the function will be invalid. Invalid, no more bits fault and warning; Valid, reset fault and warning;

5

(2002-20h=1 2)

200B-22h

n 200B-23h n+1

200B-24h 200B-2Bh n+1

200B-23h
Er.000

200B-23h (n+1) Er.xxx xxx 200B-23h

The panel displays fault or Warning "Er.xxx"	200B-23h (decimal)	200B-23h(hexadecimal)	Instructions
Er.101	257	0101	0: Class 1 non-resettable failure 101: Trouble code
Er.130	8496	2130	2: Class 1 resettable failure 130: Fault code
Er.121	24865	6121	6: Class 2 resettable faults 121: Fault code
Er.110	57616	E110	E: Class 3 resettable warning 110: Warning code

3 DO DO 12, 13, 14 FunOUT.12
ALMO1(1 AL1) FunOUT.13 ALMO2(2 AL2) FunOUT.14 ALMO3(3 , AL3) 3 DO

Bus

SDO

reveal	Fault name	Fault type	Reset or not	Error code (603Fh)	Auxiliary code (203Fh)
Er.101	Parameter exception	NO.1	no	0x6320	0x01010101
Er.102	The programmable logic configuration fails. Procedure	NO.1	no	0x7500	0x01020102
Er.103	The FPGA software version is too early. Procedure	NO.1	no	0x7500	0x01030103
Er.104	Programmable logic interrupt fault	NO.1	no	0x7500	0x01040104 0x01000104 OxOE940104
Er.105	Internal program exception	NO.1	no	0x6320	0x01050105
Er.108	Parameter storage failure	NO.1	no	0x5530	0x01080108

caveal	Fault name	Fault type			
Can you reset Error code (603Fh) Auxiliary code (203Fh) Er.111					
	Group parameters in 2000h/2001h are abnormal NO.1		no	Ox6320	
0x01110111 Er.120	Product matching fault	NO.1	no	0x7122	
0x01200120 Er.121	The servo ON command is invalid	NO.2	is	0x5441	
0x01210121 Er.122	Absolute position mode product matching failure	NO.1	no	0x7122	
0x01220122 Er.123	Reporting fault	NO.1	no	Ox0123	
0x01230123 Er.130	The DI function is reassigned	NO.1	is	Ox6320	
Ox01300130 Er.131	The DO allocation exceeds the limit. Procedure	NO.1	is	Ox6320	
0x01310131 Er.186	Data verification error in motor ROM or NO.1		no	0x7305	
Ox01360136 Parameter Er.201	Overcurrent 2	NO.1	no	Ox2312	
0x02010201 Er.207	D/Q axis current overflow fault	NO.1	is	OxOFFF	Ox02070207
Er.208	The FPGA system sampling operation timed out	NO.1	no	OxOFFF	Ox02080208
Er.210	Output short circuit to ground	NO.1	no	Ox2330	Ox02100210
Er.220	The UVW phase sequence is incorrect	NO.1	No no	OxOFFF	Ox02200220
Er.234	Flying car	NO.1	no	OxOFFF	0x02340234
Er.400	Primary circuit overvoltage	NO.1	is	0x3210	0x04000400
	Main circuit undervoltage	NO.1	is	Ox3220	Ox04100410
Er.420 Er.410 Er.430 Er.500	Main circuit undervoltage phase control undervoltage	NO.2	is	0x3130	Ox04200420
	motor overspeed	NO.1	no	0x3120	0x04300430
Er.510	Pulse output overspeed Angle identification failed	NO.1	is	Ox8400	Ox05000500
Er.602	Driver overload	NO.2	is	OxOFFF	Ox05100510
Er.610	Motor overload	NO.2	is	OxOFFF 0x3230 Ox3230	Ox06020602 Ox06100610
Er.620	Motor stalling	NO.2	is		Ox06200620
Er.630	Radiator overheat	NO.2	is	0x7121	Ox06300630
Er.650	encoder battery failed	NO.2	is	Ox4210	0x06500650
Er.731	Encoder multi-turn count error Encoder multi-turn count overflow	NO.2	is	0x7305	0x07310731
Er.735	Encoder interference	NO.2	is	0x7305 0x7305	0x07330733 Ox07350735
Er.733	External encoder ruler fault Encoder data is abnormal	NO.1	is	0x7305 0x7305	0x07400740 0x0A330A33 Ox07700770
Er.740 Er.770	The encoder loopback check is abnormal	NO.1	no	0x7305 0x7305	
Er.A33	Z signal loss	NO.1	No no		0x0A340A34
Er.A34	The position deviation is large.	NO.1	no	0x7305	Ox0A350A35
Er.A35	The position command is large	NO.2	is	Ox8611	0x0b000b00
Er.B00 Er.B01	The full closed-loop position deviation is too large. The electronic gear ratio setting exceeds the limit	NO.2	is	OxOFFF	Ox0b010b01
Er.B02 Er.B03	Error in origin bias setting *	NO.2	is	0x8611	Ox0b020b02
Er.B04	The upper and lower limits of the software	NO.2	is	0x6320	Ox0b030b03
		NO.2	is	Ox6320	Ox0B040B04
Er.D09 Er.D10		NO.2	is	Ox6320	Ox0d090d09
Er.E07 Er.E08	The network status is switched abnormally	NO.2	is	0x6320	Ox0d100d10
	同步丢失 *	NO.2	is	OxOE08	OxOE070E07
		NO.2	is	OxOE08	Ox0E080E08

reveal	Fault name	Fault type	Reset or not	Error code (603Fh)	Auxiliary code (203Fh)
Er.E11	The XML configuration file is not burned	NO.2		OxOFFF	OxOE110E11
Er.E12	Network initialization failed *	NO.2	Yes	OxOE12	
Er.E13	The synchronization period is set incorrectly *	NO.2	yes	Ox0E13	OxOE120E12 Ox0E130E13
Er.E15	The synchronization period error is too large *	NO.2	yes	OxOE15	OxOE150E15 OxOE160E16
Er.E16	The MCU and ESC software fail to verify *	NO.1	no	OxOE16	
Er.E17	The MCU and ESC software write check fails *	NO.2		OxOE17	Ox0E170E17

Er.D09, Er.D10, Er.E08 Er.E17
*

3.2.

reveal	Warning Name	Fault type	Reset or not	Error code (603Fh)	Auxiliary code (203Fh)
Er.110	Split pulse output setting failure	NO.3		0x6320	Ox01100110
Er.601	The origin time out fault	NO.3		OxOFFF	0x06010601
Er.730	Encoder battery warning	NO.3	Yes,	0x7305	Ox07300730
Er.900	DI emergency brake	NO.3	yes,	0x5442	0x09000900
Er.909	Motor overload warning	NO.3	yes,	0x3230	0x09090909
Er.920	Brake resistance overload	NO.3	yes,	0x3210	Ox09200920
Er.922	The external brake resistance is too small	NO.3	yes, yes	0x6320	0x09220922
Er.939	The motor power line is disconnected	NO.3		0x3331	0x09390939
Er.941	The changed parameters take effect after being powered on again	NO.3		0x6320	Ox09410941
Er.942	Parameter storage frequency	NO.3	Yes	0x7600	0x09420942
Er.950	Forward overshoot warning	NO.3	yes	0x5443	0x09500950
Er.952	Reverse overshoot warning	NO.3	yes	0x5444	Ox09520952
Er.980	Encoder internal fault	NO.3	Yes	0x7305	0x09800980
Er.990	Enter a phase missing warning	NO.3	yes	0x3130	Ox09900990
Er.998	The reset mode is incorrectly set	NO.3	yes	OxOFFF	Ox09980998
Er.A40	Parameter identification failure	NO.3	yes	OxOFFF	Ox0A400A40

.3.3 SDO

Abort code	Function description
0503 0000	Trigger bits do not change alternately
0504 0000	SDO Protocol Timeout
0504 0001	Illegal or unknown client/server command word
0504 0005	Memory overflow
0601 0000	Object is not accessible
0601 0001	Attempt to read only write object
0601 0002	Attempt to write read-only object
0602 0000	Object does not exist in object dictionary
0604 0041	Object cannot be mapped to PDO
0604 0042	The number and length of mapped objects exceeds the PDO length
0604 0043	General parameters not compatible

Abort code	Function description
0604 0047	General devices are not internally compatible
0606 0000	Hardware error causing object access failure
0607 0010	Data type does not match, length of service parameter does not match
0607 0012	The data type does not match and the length of the service parameter is too large
0607 0013	Data type does not match, service parameter length is too short
0609 0011	Subindex does not exist
0609 0030	Out of range of values for parameter values
0609 0031	Write parameter value too large
0609 0032	Write parameter value is too small
0609 0036	The maximum is less than the minimum
0800 0000	General errors
0800 0020	Data cannot be transferred or saved to the application
0800 0021	Data cannot be transferred or saved to the app due to local control
0800 0022	Data cannot be transferred or saved to the app due to the current device state
0800 0023	Object Dictionary Dynamic error or object dictionary does not exist
0800 0024	Numeric value not found

Er.101
1

2002h

reason	Confirmation Method	Treatment Measures
1. The control power voltage drops instantaneously	Confirm whether it is in the process of cutting off the control power (L1C, L2C) or an instant power failure.	After the system parameters are restored to initialization (2002-20h=1), write the parameters again.
	Measure whether the input voltage of the non-driver side of the control electrical cable during operation meets the following specifications: 220V driver: RMS: 220V-240V Allowable deviation: -10%~+10%(198V~264V)380V Drive: Valid value: 380V-440V Allowable deviation: -10%~+10%(342V~484V)	Increase the power capacity or replace the power supply with a large capacity, and re-write the parameters after restoring the initialization of the system parameters (2002-20h=1).
2. An instant power failure occurs during parameter storage	Check whether an instantaneous power failure occurs during the parameter value storage.	Power on the system again, restore the initialization of the system parameters (200220h=1), write the parameters again.
3. The number of write times exceeds the maximum value in a certain period of time	Check whether the host device changes the parameters frequently.	Change the parameter writing method, and write again. Or the servo drive is faulty, replace the servo drive.
4. The software is updated	Verify that you have updated your software.	Reset the drive model and motor model and restore the initialization of system parameters (2002-20h=1).

5. The servo drive is faulty	When the fault is still reported after the power is switched on for many times and the factory parameters are restored, the servo drive has a fault.	Replace the servo drive.

Er.102
2

FPGA MCU

FPGA MCU MCU FPGA

reason	Confirmation Method	Treatment Measures
1. The software versions of the FPGA and MCU do not match	View MCU software version 2001-01h and FPGA software version 2001-02h on the panel or driver debugging platform, and check whether the highest non-zero values of the two software versions are consistent.	Consult our technical support to update the matching FPGA or MCU software.
2.FPGA is faulty	The fault is still reported after the FPGA is powered on for multiple times.	Replace the servo drive.

3 Er.103 FPGA

FPGA 2001-02h 0112.0(MCU 2001-01h 0101.7)

reason	Confirmation Method	Treatment Measures
1. The FPGA version 2001-02h is earlier than 0112.0	Check the MCU software version 2001-01h and FPGA software version 2001-02h on the panel or driver debugging platform.	Update the matching FPGA or MCU software.
2. The FPGA is faulty	The fault is still reported after the FPGA is powered on for multiple times.	Replace the servo drive.

4 Er.104

200B-2Eh

MCU FPGA

reason	Confirmation Method	Treatment Measures
1. FPGA fault (Er.104)	The fault is still reported after multiple power connections.	Replace the servo drive.
2. Abnormal handshake between FPGA and MCU (Er.100)		
3. Drive internal calculation timeout (Er.940)		

5 Er.105

EEPROM /

()

原因	确认方法	处理措施

1. The EEPROM is faulty	Confirm by following the method of Er 101.	Power it on again after the system parameters are restored to initialization (2002-20h=1).
2. The servo drive is faulty	The fault is still reported after multiple power connections.	Replace the servo drive.

6 Er.108

EEPROM
EEPROM

reason	Confirmation Method	Treatment Measures
1. An exception occurs when parameters are written 2. An exception occurs when reading a parameter	After changing a parameter, power it on again and check whether the value of the parameter is saved.	It is not saved and the fault persists after repeated power-on. You need to replace the drive.

7 Er.120

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reason	Confirmation Method	Treatment Measures
1. The product number (motor or drive) does not exist	Internal fault code 200B-2Eh=0120 or 1120 Check whether the motor nameplate matches the motor of our company. According to the motor nameplate, confirm whether the 2000-01h setting is correct	Reset 2000-01h (motor number) according to the motor nameplate or replace the matched motor.
	Internal fault code 200B-2Eh=2120 Look at the drive model (2001-03h) and refer to see if this drive model is available.	The drive number does not exist, according to the drive nameplate, reference, set the correct drive model.
2. The motor does not match the drive power level	Internal fault code 200B-2Eh=3120 View and confirm the drive Whether the vehicle type number (2001-03h) matches the bus motor model number (2000-06h).	Refer to "1.3 Servo System Matching Specifications "on page 47 to replace the product that does not match.

Er.121
8
ON

reason	Confirmation Method	Treatment Measures
1. When the internal function is enabled, the communication servo function is effective	Confirm whether the auxiliary function is used: 200D-03h, 200D-04h, 200D-0Ch, and the servo enable signal is sent through the host computer at the same time	Turn off the servo enable signal on the host computer

9
Er.122

reason	Confirmation Method	Treatment Measures
Detect motor mismatch or motor number setting error in absolute position mode	Check the motor nameplate for a multi-turn absolute encoder motor. Check that 2000-01h (motor number) is correct.	Reset the 2000-01h (motor number) according to the motor nameplate or replace the matching motor.

10 Er.123

23

reason	Confirmation Method	Treatment Measures
1. Match 23-bit encoder servo motor abnormality	Check that the H00-04 encoder version number is 23xx.x	If it is not 23xx.x, it will need to be replaced with a 23-bit encoder motor.

11 Er.130 DI

DI DI DI

DI DI

DI

reason	Confirmation Method	Treatment Measures
1. When the DI function is assigned, the same function is assigned to multiple DI terminals	View 2003-03h/2003-05h... 2003-15h,2017-01h/2017-03h··· 2017-1Fh Whether the same non-zero DI function number is set.	Group 2003h and Group 2017h parameters assigned with the same non-zero function number are reassigned to different function numbers, and then re-power on the control power to make the change effective, or first turn off the servo enable signal and give the "reset signal" to make the change effective.
2. The DI function number exceeds the number of DI functions	Whether the MCU program is updated.	Power back on after system parameters restore initialization (2002-20h=1).
3. The DI function is not supported	Check whether the DI function set in group 2003h and group 2017h is supported	Do not set the DI function number outside the DIDO function definition table.

12 Er.131:DO

DO DO

reason	Confirmation Method	Treatment Measures
1. The number of DO functions exceeds the number of DO functions	Whether the MCU program has been updated.	Power back on after system parameters restore initialization (2002-20h=1).

13 Er.136 ROM ROM

reason	Confirmation Method	Treatment Measures
1. The drive and motor type do not match	Confirm whether it is our bus series driver and servo motor	Replace the driver and motor with a matching one.
2. Parameter verification error or no parameter stored in bus incremental encoder ROM	Check whether to choose our standard encoder cable, cable specifications please see The cable has no broken skin, broken wire, no bad contact between the terminals on both sides, and reliable connection. Measure the signals at both ends of the encoder cable: PS+, PS-, +5V,GND, and observe whether the signals on both sides are consistent. Refer to hardware wiring for signal definition.	Use the standard encoder cable of our company, ensure that the terminal of the motor is tightly connected, and the screw of the driver end is tightened, must Replace the encoder cable with a new one when necessary. Do not bundle the encoder cable with the power line (RST, UVW), and separate the drive line.
3. The drive is faulty	The fault is still reported after the power-on.	Replace the servo drive.

14 Er.201 2

1. The input command is synchronized with the on-servo or the input command is too fast	Check whether the command has been entered before the servo panel displays "ry".	Command timing: After the servo panel displays "ry", turn on the servo enable signal first, and then enter the command. If permitted, add the command filter time constant or increase the acceleration and deceleration time.
2. The brake resistance is too small or short circuit	If the built-in brake resistance is used (2002-1Ah=0), confirm whether the P and D are reliably connected with wires, if so, measure the resistance value between C and D; If an external brake resistor (2002-1Ah=1/2) is used, measure the resistance value of the external brake resistor between P and C. Please refer to the specification of brake resistor	If the built-in brake resistor is used, the resistance value is "0", then adjust to use the external brake resistor (2002-1Ah=1/2), and remove the wire between P and D, the resistance value and power can be selected and the built-in brake resistor specifications are consistent If the external brake resistor is used, the resistance value is less than 2002-16h, refer to replace the new resistor, reconnect between P and C. Be sure to set 2002-1Bh(External brake resistance power)20021Ch(External Brake resistance resistance value) to the actual use of external brake resistance parameters.
3. Motor cables are in poor contact	Check that the connection between the two ends of the driver power cable and the UVW side of the driver in the motor cable is loose.	Tighten the cables that are loose and falling off.
4. Ground the motor cable	After ensuring that the driver power cable and motor cable are securely connected, measure the insulation resistance between the UVW end of the driver and the ground cable (PE) respectively to see if the value is in the megohm (MΩ) level.	Replace the motor if the insulation is poor.
5. Motor UVW cable is short-circuited	Remove the motor cable and check whether there is a short circuit between the motor cable UVW and whether there is a burr in the wiring.	Connect the motor cables correctly.
6. Motor burns out	Unplug the motor cable and measure whether the resistance between the UVW of the motor cable is balanced	If it is not balanced, replace the motor.
7. The gain setting is unreasonable and the motor oscillates	Check whether there is vibration or sharp sound during the motor startup and operation, and also use the Huichuan drive debugging platform to check the "current feedback".	Make gain adjustments.
8. Encoder wiring error, aging corrosion, encoder plug loose	Check whether to choose our standard encoder cable, cable has no aging corrosion, loose joints. Turn off the servo enable signal, turn the motor shaft by hand, and check whether 200B-0Bh changes with the motor shaft rotation.	Re-solder, plug in, or replace the encoder cable.
9, the drive fails	Unplug the motor cable and power it on again. The fault is still reported.	Replace the servo drive.

15 Er.207 D/Q

reason	Confirmation Method	Treatment Measures
1. The DQ axis current overflows	When the fault is reported after multiple times of power connection, the servo drive has a fault.	Replace the servo drive.

16 Er.208 FPGA

Er.208 (200B-2Eh)

reason	Confirmation Method	Treatment Measures
1.MCU communication times out	Internal fault code 200B-2Eh=1208: Internal chip damage	Replace servo drive

reason	Confirmation Method	Treatment Measures
2. Encoder communication times out	Internal fault code 200B-2Eh=2208 Encoder wiring error Encoder cable loose The encoder cable is too long Encoder communication is interfered with Encoder failure	Cable priority use our standard cable, if non-standard wiring, check whether the cable meets the specifications, whether to use twisted-pair shielded cable, etc Check that the ends of the encoder plug are in good contact and that there is no needle indentation Go wait condition Contact the manufacturer Separate the strong and weak power as far as possible. Do not bundle the motor cable and the encoder cable. The ground contact between the motor and the driver is good Replace the servo motor
3. Current sampling times out	Internal fault code 200B-2Eh=3208: Check whether large-scale devices are on site to generate interference, or whether multiple interference sources, such as multiple power conversion devices, exist in the cabinet The internal current sampling chip is damaged	Separate the strong and weak power sources of onsite cables. Do not bind and replace the servo driver
4. High precision AD conversion timeout	Internal fault code 200B-2Eh=4208: There is interference in high-precision Al channel wiring. Check Al channel wiring by referring to the correct wiring diagram	Use twisted-pair shielded wire to rewire and shorten the length of the line
5. The FPGA calculation times out	Internal fault code 200B-2Eh=0208: Troubleshoot the cause as cause 1/2/3/4	Proceed as cause 1/2/3/4

17 Er.210

reason	Confirmation Method	Treatment Measures
1. The driver power cable (UVW) is short-circuited to the ground	Unplug the motor cables and separately measure whether the driver power cable UVW is short-circuited to ground (PE).	Rewire or replace the driver power cable.
2 Short circuit the motor to the ground	After ensuring that the driver power cable and motor cable are securely connected, measure the insulation resistance between the UVW end of the driver and the ground wire (PE) respectively to see if the value is megohm (MΩ) level.	Replace the motor.
3 Drive failure	Remove the drive power cable from the servo drive, and the fault is still reported after multiple power connections.	Replace the servo drive.

18 Er .220 Er.234

reason	Confirmation Method	Treatment Measures
1. The UVW phase sequence is incorrectly connected	Check whether the two ends of the driver power cable are connected to the UVW end of the motor cable and the UVW end of the driver.	Wiring according to the correct UVW phase sequence.
2. When powering on, the interference signal causes the initial phase detection error of the motor rotor	The UVW phase sequence is correct, but the Er.234 is reported when the servo drive is enabled.	Power it back on.
3. The encoder is of the wrong model or is wired incorrectly	According to the driver and motor nameplate, confirm whether it is our bus series driver and 17bit servo motor	Replace the driver and motor that match each other, and ensure that 2000-01h=16000 when using our bus driver and 17bit servo motor. Reconfirm the motor model, encoder type, encoder wiring.

4. Encoder wiring error, aging corrosion, encoder plug loose	Check whether to choose our standard encoder cable, cable has no aging corrosion, loose joints. Turn off the servo enable signal, turn the motor shaft by hand, and check whether 200B-0Bh changes with the motor shaft rotation.	Re-solder, plug in, or replace the encoder cable.
5. The gravity load is too large under the working condition of vertical shaft	Check whether the vertical shaft load is too large, adjust 2002-0Ah~2002ODh lock parameters, whether the fault can be eliminated.	Reduce the vertical shaft load, or improve the rigidity, or on the premise of not affecting safety and use, shield the fault

20 Er.400

P,

220V 310V 420V

■ 380V driver: Normal value: 540V, fault value: 760V.

Cause	Confirmation Method	Treatment Measures
1. The input voltage of the main loop is too high	Check the driver input power specifications and measure whether the main loop cable driver side (RST) input voltage meets the following specifications: 220V driver: RMS: 220V-240V Allowable deviation: -10%~+10%(198V~264V)380V driver: RMS: 380V-440V Allowable deviation: -10%~+10%(342V~484V)	Replace or adjust the power supply according to the specifications on the left.
2. The power supply is in an unstable state or affected by lightning strikes	Monitor whether the input power of the driver is affected by lightning strikes, and measure whether the input power is stable and meets the above specifications.	After connecting the surge suppressor, connect the control power and the main circuit power. If the fault still occurs, replace the servo drive.
3. The brake resistance fails	If the built-in brake resistance is used (2002-1Ah=0), confirm whether the P and D are reliably connected with wires, if so, measure the resistance value between C and D; If the external brake resistor (2002-1Ah=1/2) is used, the resistance value of the external brake resistor between P and C is measured. Brake resistance specifications for reference	If the resistance value is "0" (infinity), the internal line break of the brake resistance: If using built-in brake resistors, adjust to use external brake resistors (2002-1Ah = 1/2) and remove P, The wire between D, the resistance value and power can be selected to be consistent with the built-in brake resistance; If an external brake resistor is used, replace it with a new resistor and reconnect it between P and C. Be sure to set 2002-1Bh(external brake resistance power), 2002-1Ch (External brake resistance resistance value) to the actual use of external brake resistance parameters.
4. The resistance value of the braking energy cannot be completed |. Measure the resistance value of the external brake resistance between P and C,	external brake resistance is too large, and the maximum and compare it with the recommended value. All absorbed	Replace the resistance value of the external brake resistor with the recommended value and reconnect it between P and C. Be sure to set 2002-1Bh(external brake resistance power) and 2002-1Ch(external brake resistance resistance value) to the actual use of external brake resistance parameters.
5. The motor runs in the state of rapid acceleration and deceleration, and the maximum braking energy exceeds the absorbable value	Confirm the acceleration and deceleration time in operation, measure the DC bus voltage between P and P, and confirm whether the voltage exceeds the fault value when it is in the deceleration section.	First, ensure that the input voltage of the main loop is within the specification range, and then increase the acceleration and deceleration time if permitted.
6. There is a large deviation in the sampled bus voltage value	Observe whether the parameter 200B-1Bh(bus voltage value) falls within the following range: 220V driver :200B-1Bh >420V 380V driver: 200B-1Bh >760V Measure whether the DC bus voltage value between P and P is normal and less than 200B-1Bh.	Consult our technical support.
7. The servo drive is faulty	After several times of power-off, reconnect the main circuit power, still reported fault.	Replace the servo drive.

21 Er.410

P,

220V 310V 200V

■ 380V drive: Normal value: 540V, fault value: 380V

reason	Confirmation Method	Treatment Measures
1. The power supply of the main loop is unstable or powered off	Check the driver input power specifications and measure whether the non-driver side and driver side (RST) input voltage of the main loop cable meets the following specifications: 220V driver: RMS: 220V-240V Allowable deviation: -10%~+10%(198V~264V)380V Drive: RMS: 380V-440V Allowable deviation: -10% to +10%(342V to 484V) All three phases need to be measured.	Increase power capacity.
2. Instantaneous power outage occurs		
3. The power supply voltage drops during operation	Monitor the input power supply voltage of the driver, and check whether the power supply of the same main loop has opened other Settings too much, resulting in insufficient power capacity voltage drop.	
4. Lack of phase, the driver that should input 3-phase power supply is actually running with single-phase power supply	Check whether the main loop is connected correctly and reliably, and check whether parameter 200A-01h phase fault detection is shielded.	Replace the cable and connect the main loop power cord correctly: Three-phase: RST Single-phase: L1 L2
5. The servo drive is faulty	Observe whether the parameter 200B-1Bh(bus voltage value) is in the following range: 220V driver: 200B-1Bh <200V380V Driver: 200B-1Bh < 380V After multiple power-off, the fault is still reported after re-connecting the main circuit power (RS T).	Replace the servo drive.

22) Er.420: out of phase in main loop

Production mechanism:

■ Three phase drive missing 1 phase or 2 phase.

reason	Confirmation Method	Treatment Measures
1. The three-phase input cable is improperly connected	Check that the cables between the non-driver side and the driver main loop input terminal (RST) are properly and securely connected	Replace the cable and connect the main loop power cord correctly:
2 3-phase specification drivers run on a single-phase power supply	Look at the driver input power specifications, check the actual input voltage specifications, and measure whether the main loop input voltage meets the following specifications: 220V driver: RMS: 220V-240V Allowable deviation: -10%~+10%(198V~264V) 380V driver: Valid value: 380V-440V Allowable deviation: -10%~+10%(342V~484V) All three phases need to be measured.	For a 0.75kW three-phase drive (drive model 2001-03h=5), it is allowed to run on a single phase power supply. If the input voltage meets the specifications on the left, you can set 200A-01h=2 (No power input phase loss protection faults and warnings); In other cases, if the input voltage does not meet the specifications on the left, please replace or adjust the power supply according to the specifications on the left.
3. The three-phase power supply is unbalanced or the three-phase voltage is too low		
4. The servo drive is faulty	After multiple power-off, the fault is still reported after re-connecting the main circuit power (RST).	Replace the servo drive.

23 Er.430

220V 310V 190V 380V 540V 350V

reason	Confirmation Method	Treatment Measures
1. The power supply of the controller cable is unstable or powered off	Confirm whether it is in the process of cutting off the control power (L1C L2C) or an instant power failure occurs.	Power on the device again. If an abnormal power failure occurs, ensure that the power supply is stable.
	Measure whether the input voltage of the control power cable meets the following specifications: 220V driver: RMS: 220V-240V Allowable deviation: -10%~+10%(198V~264V) 380V Drives: Valid value: 380V-440V Allowable deviation: -10%~+10%(342V~484V)	Increase the power supply capacity.
2. The control cable is not in good contact	Check whether the cable is connected, and measure whether the voltage on the driver side of the control cable (L1C, L2C) meets the above requirements.	Rewire or replace the cable.

Er.500
24

reason	Confirmation Method	Treatment Measures
1. The UVW phase sequence of motor cable is incorrect	Check whether the two ends of the driver power cable are connected to the UVW end of the motor cable and the UVW end of the driver.	Follow the correct UVW phase sequence for wiring.
2.200A-09h parameter setting error	Check whether the overspeed fault threshold is less than the maximum motor speed to be achieved in actual operation: Overspeed fault threshold =1.2 times the maximum motor speed (200A-09h =0); Overspeed fault threshold =200A-09h (200A-09h # 0, and 200A-09h < 1.2 times the maximum motor speed).	Reset the overspeed fault threshold according to mechanical requirements.
3. The input command exceeds the overspeed threshold	Whether the motor speed corresponding to the input instruction exceeds the overspeed fault threshold position control mode: In CSP mode, check the gear ratio 6091-01h/6091-02h, determine the increment value of the position instruction corresponding to a single synchronization cycle, and convert it into speed information In PP mode, check the gear ratio 6091-01h/6091-02h and determine 6081h (contour speed) HM mode, look at gear ratio 6091-01h/6091-02h, OK 6099-01h and 6099-02h Speed control mode: View gear ratio 6091h, target speed 60FFh and speed limit value 2006-07h~2006-0Ah,607Fh(maximum profile speed) Torque control mode: Look at the speed limit setting in torque mode 2007-12h, and then look at the corresponding speed limit value	Position control mode: CSP: Reduce the increment of position instruction corresponding to a single synchronization cycle, and increase bits when planning instructions on the host computer Set Ramp PP: Decrease 6081h, or increase acceleration and deceleration ramp (6083h 6084h) HM: Decrease 6099-01h and 6099-02h, or increase High deceleration ramp (609Ah) Reduce the gear ratio according to the actual situation. Speed mode: Reduce the target speed, speed limit, gear ratio, PV mode, can increase the speed ramp 6083h and 6084h, CSV mode, the upper computer should increase the speed ramp processing Torque Control mode: Set the speed limit value below the overspeed fault threshold

4. Motor speed overshoot	Use the Huichuan drive debugging platform to check whether the "speed feedback" exceeds the overspeed fault threshold.	Make gain adjustments or adjust the mechanical operating conditions.
5. The servo drive is faulty	After restarting the operation, the fault still occurs.	Replace the servo drive.

Er.510
25

(2005-27h=0
1)
(1MHz)

reason	Confirmation Method	Treatment Measures
The output pulse frequency exceeds the upper limit allowed by the hardware (1MHz).	When 2005-27h=0(encoder frequency division output), calculate the output pulse frequency corresponding to the motor speed when the fault occurs, and confirm whether the limit is exceeded. Output pulse frequency (Hz)=	Reduce 2005-12h(number of encoder split pulses) so that the output pulse frequency is less than the upper limit of the frequency allowed by the hardware over the entire speed range required by the machinery.
	2005-27h=1 (pulse command synchronous output) when the input pulse frequency exceeds 1MHz or there is interference in the pulse input pin. High speed pulse input pin: Differential input terminals: HPULSE+, HPULSE-, HSIGN+SIGN-, Maximum pulse frequency: 1Mpps.	Reduce the input pulse frequency to within the upper limit of the frequency allowed by the hardware Note that: At this time, if the electronic gear ratio is not modified, the motor speed will be reduced. If the input pulse frequency itself is high, but does not exceed the frequency limit allowed by the hardware, anti-interference measures should be taken (the pulse input wire is shielded by twisted-pair, and the pin filter parameter is set 200A-19h or 200A-1F) to prevent the interference pulse from superimposed on the real pulse instruction, resulting in false position-fault.

26 .602

Er

Er.610

reason	Confirmation Method	Treatment Measures
1. The parameters are set incorrectly	Check that the Settings of 2001-03 (drive model) are accurate; Check whether the gain (2008 group parameters) or rigidity (2009-01, 2009-02) Settings are reasonable.	According to the driver model corresponding to the number The 2001-03 setting according to the current feedback effect reasonable adjustment parameters.
2. Drive load rate is too high (load inertia is too large)	Confirm that 200B-0D (average load rate) is too large (more than 80%), and then detect whether the inertia is too large through inertia identification.	Re-type the driver and choose the driver with higher power.
3. The drive load rate is too high (mechanical stutter)	Confirm that 200B-0D (average load ratio) is too large (more than 80%) and then observe whether there is a stalling phenomenon when the load runs.	Remove mechanical stalling.
4. Motor jam	Check whether the value of 200A-22h (lock-turn temperature protection enable) is 0. If the lock-turn protection is shielded, when the real lock-turn, the drive will report Er.610.	See Er.630 Troubleshooting method.

28 Er.620

reason	Confirmation Method	Treatment Measures
1. Motor wiring and encoder wiring are wrong and bad	Compare the correct "wiring diagram" to see the line between the motor, driver and encoder.	Connect cables according to the correct wiring diagram; First use our standard cable; When using self-made cables, please make and connect them according to the hardware wiring instructions.
2. The load is too heavy, the effective output torque of the motor exceeds the rated torque, and the operation continues for a long time	Confirm the overload characteristics of the motor or drive; See if the drive load average (200B-0Dh) is greater than 100.0% for an extended period of time.	Replace the high capacity drive and the matching motor; Or reduce the load, increase the acceleration and deceleration time.

reason	Confirmation Method	Treatment Measures
3. Acceleration and deceleration are too frequent or the load inertia is large	Calculate the mechanical inertia ratio or inertia identification, check the inertia ratio to confirm the single running cycle of the servo motor during cyclic operation. 2008-10h;	Increase the acceleration and deceleration time in a single run.
4. The gain adjustment is inappropriate or too rigid	Observe whether the motor vibrates and the sound is abnormal during operation.	Readjust the gain.
5. The drive or motor model is incorrectly set	Check the bus motor model 2000-06h and the driver model 2001-03h.	Look at the driver nameplate and set the correct driver model number (2001-03h) and motor model number to match against section 2.3.
6. The motor is blocked due to mechanical factors, resulting in excessive load during operation	Shown by the drive commissioning platform or panel, confirm the running instructions and motor speed (200B-01h): Run instruction in position mode: 200B-0Eh (input position instruction counter) Speed mode operation instruction: 200B-02h (speed instruction) Instruction for running in torque mode: 200B-03h (Internal torque instruction) Confirm that in the corresponding mode, the running instruction is not 0, and the motor speed is 0.	Rule out mechanical factors.
7. The servo drive is faulty	After powering it off, power it on again, but the fault is still reported.	Replace the servo drive.

Er.630
29

10rpm
200A-21h

reason	Confirmation Method	Treatment Measures
1. The driver UVW output lacks phase or the phase sequence is connected incorrectly	Test run the motor without load, and check the wiring.	Rewire according to the correct wiring, or replace the cable.
2. Driver UVW output disconnection or encoder disconnection	Check the wiring.	Rewire the cables according to the correct wiring, or replace the cables.
3. Motor blocked due to mechanical factors	Displayed by the drive debugging platform or panel, confirm the running instructions and motor speed (200B-01h) : Run instruction in position mode: 200B-OEh (input position instruction counter) Speed mode operation instruction: 200B-02h (speed instruction) Instruction for running in torque mode: 200B-03h (Internal Torque instruction) Confirm that in the corresponding mode, the running instruction is not 0, and the motor speed is 0.	Check for mechanical factors.

30 Er.650

reason	Confirmation Method	Treatment Measures
1. The ambient temperature is too high	Measure the ambient temperature	Improve the cooling conditions of the servo drive and reduce the ambient temperature.

reason	Confirmation Method	Treatment Measures
2. After overload, reset the overload fault by turning off the power, and repeat it many times	Review the fault history (Set 200B-22h, check 200B-23h), whether there is an overload fault or warning (Er.610, Er.620, Er.630, Er.650, Er.909, Er.920, Er.922).	Change the fault reset method, wait 30s after overload and reset again. Improve drive, motor capacity, increase acceleration and deceleration time, reduce load.
3. The fan is broken	Whether the fan is running while running.	Replace the servo drive.
4. The installation direction of the servo drive and the interval between the servo drive and other servo drives are unreasonable	Confirm whether the servo drive is properly installed.	Install according to the servo drive's installation standards.
5. The servo drive is faulty	5 minutes after power failure restart still reported fault.	Replace the servo drive.

31 Er.731:

2.8V

reason	Confirmation Method	Treatment Measures
During the power outage, the battery is not connected	Verify that it is connected during the power outage	Set 200D-15h=1 to clear the fault
Encoder battery voltage is too low	Measure the battery voltage	Replace the battery with a new one that matches the voltage

32 Er.733

reason	Confirmation Method	Treatment Measures
Encoder failure	Set 200D-15h=2 Clear the fault and Er.733 still occurs after repowering	Replace motor

33 Er.735

reason	Confirmation Method	Treatment Measures
Detect encoder multi-turn count overflow when 2002-02h=1	-	Set 200D-15h=1 to clear the fault and power it back on

34 Er.740

Z Z

reason	Confirmation Method	Treatment Measures
1. The encoder is incorrectly connected	Check the encoder wiring.	Rewire according to the correct wiring diagram
2. The encoder cable is loose	Check whether the vibration on site is too large, causing the encoder cable to loose or even vibration the encoder.	Rewire the encoder and make sure the encoder terminal is securely connected.

reason	Confirmation Method	Treatment Measures
3. Encoder Z signal is interfered	Check the wiring situation on site: whether there are large-scale devices around to cause interference, or whether there are various sources of interference such as a variety of power conversion devices in the cabinet. Let the servo in the "Rdy "state, manually rotate the motor shaft counterclockwise, and monitor whether 200B-OBh (electrical Angle) is smoothly increased or decreased, and one circle corresponds to 5 0-360°. (refers to the Z series motor, if it is the X series motor, it is 4 0-360°). If there is an abnormal mutation of 200B-0Bh during rotation, the encoder itself has a big problem. If there is no alarm during rotation, but there is an alarm during servo operation, the possibility of interference is large.	The cable is preferred to use our standard cable; If non-standard wiring, check whether the cable meets the specifications, whether to use twisted-pair shielded wire, etc. Separate the strong and weak electricity as far as possible on the cable, do not bundle the motor cable and the encoder cable, and the ground contact between the motor and the driver is good. Check whether the ends of the encoder plug contact is good, whether the needle is retracted and so on.
4. The encoder is faulty	Replace the encoder cable that can be used normally. If the fault no longer occurs after replacement, it indicates that the original encoder cable is damaged. Put the motor in the same position, power it on several times and look at 200B-0Bh, the electrical Angle deviation should be within ±30°.	Replace a working encoder cable. If not, the encoder itself has a big problem, and the servo motor needs to be replaced.

Er.770
35

A+/A- B+/B- Z+/Z-
2

reason	Confirmation Method	Treatment Measures
1. Frequency division output is not prohibited	Check that H05-38 has a value of 2	Set the value of H05-38 to 2
2, when using the full closed-loop function or non-standard pulse input function, the level difference of A+/A-B+/ B-Z +/Z- any group of 2 signals does not meet the requirements: the level difference is greater than or equal to 2V	Measure the A+/A-B+/ B-Z +/Z- level difference	Adjust the level until the specification is met. Note: When using an external encoder without Z, be sure to pull Z+ up above 2V with Z- grounded.
3, parameter setting error, not using the full closed-loop function or non-standard pulse input function set HOF-00=1	Check what the value of HOF-00 is	If the full loop function or non-standard pulse input function is not used, set the value of HOF-00 to 0

36 Er.A33

reason	Confirmation Method	Treatment Measures
1. The bus type incremental encoder cable is broken or loose	Check the cable connection.	Confirm that the encoder cables are not incorrectly connected, or broken, poor contact, etc., and if the motor cables and encoder cables are bundled together, route them separately.
2. Bus-type incremental encoder parameter reading and writing is abnormal	When the fault is still reported after multiple power connections, the encoder fails.	Replace the servo motor.

37 Er.A34

2500

原因	确认方法	处理措施

1. The driver and motor type do not match	According to the driver and motor nameplate, confirm the use of our bus series driver and 17bit servo motor 7, check whether 2000-01h(motor number) is 16000.	Replace it with a matching motor and driver.
2. Disconnect the encoder cable	Check whether the encoder cable is disconnected, and whether the two ends of the cable are securely connected to the motor and the driver.	Replace the encoder cable in good condition and secure the connection.

Er.A35
38
Z

2500
Z
AB

reason	Confirmation Method	Treatment Measures
1. Encoder failure causes Z signal loss	After using the encoder cable in good condition and wiring correctly, rotate the motor shaft by hand to check whether the fault is still reported.	Replace the servo motor.
2. Poor wiring or misconnection leads to loss of encoder Z signal	Rotate the motor shaft by hand to see if the fault is still reported.	Check that the encoder wire is in good contact and rewire or replace the cable.

39
Er.B00

6065h

reason	Confirmation Method	Treatment Measures
1. The driver UVW output lacks phase or the phase sequence is connected incorrectly	Test run the motor without load, and check the wiring.	Rewire according to the correct wiring, or replace the cable.
2. Driver UVW output disconnection or encoder disconnection	Check the wiring.	Rewire, servo motor power cable and drive power cable UVW must -- correspond. Replace the new cable if necessary and ensure its reliable connection.
3. Motor blocked due to mechanical factors	Shown by the drive debugging platform or panel, confirm the running instructions and motor speed (200B-01h) : Run instruction in position mode: 200B-OEh (input position instruction counter) Speed mode operation instruction: 200B-02h (speed instruction) Instruction for running in torque mode :200B-03h (Internal Torque instruction) Confirm that in the corresponding mode, the running instruction is not 0, and the motor speed is 0.	Check for mechanical factors.
4. The servo drive gain is low	Check the servo drive position loop gain and speed loop gain: First gain: 2008-01h~2008-03h Second gain: 2008-04h~2008-06h	Perform manual gain adjustment or automatic gain adjustment.

reason	Confirmation Method	Treatment Measures
5· Position command increment is too large	Position control mode: In CSP mode, check the gear ratio 6091-01h/609102h, determine the increment value of the position instruction corresponding to a single synchronization cycle, and convert it into speed information In PP mode, check the gear ratio 6091-01h/6091-02h to determine 6081h(contour speed) HM mode, look at gear ratio 6091-01h/609102h and determine 6099-01h and 6099-02h	CSP: Reduce the increment of position instruction corresponding to a single synchronization cycle. When planning instructions on the host computer, the position slope PP should be increased: reduce 6081h, or increase the acceleration and deceleration slope (6083h, 6084h). HM: Reduce 6099-01h and 6099-02h, or increase acceleration and deceleration ramp (609Ah) Reduce the gear ratio according to the actual situation.
6. Relative to the operating conditions, the fault value 6065h is too small	Confirm whether the position deviation fault value 6065h is set too small.	Increase the 6065h set value.
7. Servo drive/motor failure	Monitor the operating waveform through the oscilloscope function of the driving debugging platform: Position instruction, position feedback, speed instruction, torque instruction	If the position command is not zero and the position feedback is always zero, replace the servo drive/motor.

Er.B01
40

reason	Confirmation Method	Treatment Measures
1. The increment of position instruction is too large	Check the target position instruction increment of adjacent synchronization cycles (equivalent to the motor speed instruction)	Reduce the target position instruction increment
2. The target position (607A target position) is not aligned with the current position before mode switching or when the servo is enabled	Check whether mode switching or steering servo is enabled in the controller software	Assign the value of the current position to the target position (607A target position) before mode switching or when the servo is enabled
3. Phase crossover of synchronization cycle, resulting in excessive accumulation of position instructions	Monitor the phase of SYNC and IRQ through the background oscilloscope to observe whether there is a large fluctuation	If the AM600 sync offset parameter is set to 0; For other upper computers, please check the upper computer communication
4. Motor speed limit error	Check the set values for the maximum motor speed and maximum profile speed	Confirm that the maximum motor speed meets the application requirements and check that the setting of the maximum profile speed 607Fh is too small

41 Er.B02

200F-09h( )

reason	Confirmation Method	Treatment Measures
1. The driver UVW output lacks phase or the phase sequence is connected incorrectly	Test run the motor without load, and check the wiring.	Rewire according to the correct wiring, or replace the cable.
2 Drive UVW output disconnection or internal/external encoder disconnection	Check the wiring.	Rewire, servo motor power cable and drive power cable UVW must -- correspond. Replace the new cable if necessary and ensure its reliable connection.

3. Motor blocked due to mechanical factors	Running instructions and motor speed (200B-01h) : Operating instruction in position mode: 200B-OEh (Enter the position instruction counter) Speed mode operation instruction: 200B-02h (speed instruction) Instruction for running in torque mode: 200B-03h (Internal Torque instruction) Confirm that in the corresponding mode, the running instruction is not 0, and the motor speed is 0.	Check for mechanical factors.
4. The servo drive gain is low	Check the servo drive position loop gain and speed loop gain: First gain: 2008-01h~2008-03h Second gain: 2008-04h~2008-06h	Perform manual gain adjustment or automatic gain adjustment.
5. Position command increment is too large	Position control mode: In CSP mode, check the gear ratio 6091-01h/609102h, determine the increment value of the position instruction corresponding to a single synchronization cycle, and convert it into speed information PP mode, check gear ratio 6091-01h/609102h, determine 6081h (contour speed) HM mode, look at gear ratio 6091-01h/609102h and determine 6099-01h and 6099-02h	CSP: Reduce the increment of position instruction corresponding to a single synchronization cycle, and increase the position slope when planning instructions on the host computer PP: Reduce 6081h, or increase the acceleration and deceleration slope (6083h, 6084h) HM: Reduce 6099-01h and 6099-02h, or increase acceleration and deceleration ramp (609Ah) Reduce the gear ratio according to the actual situation.
6. The fault value (200F-09h) is too small relative to the operating conditions	Confirm whether the fault threshold (200F-09h) is set too small when the full closed-loop position deviation is too large.	Increase the 200F-09h setting.
7. Servo drive/motor failure	Monitor the operating waveform through the oscilloscope function of the Huichuan drive debugging platform: Position instruction, position feedback, speed instruction, torque instruction	If the position command is not zero and the position feedback is always zero, replace the servo drive/motor.

42) Er.B03: Electronic gear setting overrun

/ 10000
4000
(0.001
/ 10000).

reason	Confirmation Method	Treatment Measures
1. Electronic gear ratio set value exceeds the above range	Gear ratio 6091-01h/6091-02h exceeds the above range	Set the gear ratio according to the above range.
2. Parameter change sequence problem	The gear ratio is within the above range, but the intermediate process of changing the gear ratio is reported	Use the fault reset function or power it back on.

43 Er.B04

原因	确认方法	处理措施

In full closed loop position mode, the source of position instruction is internal position instruction, but the inner and outer loop switching mode is used	Check to see if 200F-01h is 2 Confirm whether the source of the position instruction is the internal position instruction multi-segment position instruction, and the medium determine long function	When the full closed-loop function is used, and the position instruction source is the internal position instruction, only the external encoder feedback mode can be used, that is, the 200F-01h can only be 1.

Er.110
1

(2005-27h=0)

reason	Confirmation Method	Treatment Measures
Encoder frequency dividing pulse number does not meet the range	Incremental code plate: the number of encoder frequency dividing pulses can not exceed the resolution of the encoder; 17bit bus type incremental encoder, resolution 131072(P/r); 2500 line incremental encoder with 10000(P/r) resolution; Absolute value code disc: the number of encoder frequency dividing pulses cannot exceed 1/4 of the resolution of the encoder.	Reset the number of encoder split pulses (2005-12h) so that they meet the specified range.

2 Er.601

2005-24h

2.

reason	Confirmation Method	Treatment Measures
1. The origin switch is faulty	The origin return has been in high speed search without low speed search process. After the origin return to high speed search, it has been in the reverse low speed search process.	If the hardware DI is used, confirm that the DI function is set in group 2003h, and then check the DI terminal connection. When the DI terminal logic changes manually, monitor whether the driver receives the corresponding DI level change through 200B-04h. If not, it indicates that the DI switch is incorrectly connected; If not, it indicates that there is an error in the origin regression operation, and the function is operated correctly. If virtual DI is used, check whether VDI is used correctly.
2. Limit the time to find the origin point to too short	Check whether the time set for 2005-24h is too short	Increase 2005-24h
3. The speed of high-speed search for the origin switch signal is too small	Check the distance between the starting position of return to zero and the origin switch, and determine whether the speed value set in 6099-01h is too small, resulting in too long time to find the origin switch	Increase 6099-01h
4. The switch setting is incorrect	Confirm whether the limit signals on both sides are in an effective state at the same time Confirm whether a limit is effective at the same time as the deceleration point signal or the origin signal	Set the hardware switch position reasonably

3 Er.730:

3.0
V

reason	Confirmation Method	Treatment Measures

1. The encoder battery voltage of absolute encoder is lower than 3.0V	Measure the battery voltage	Replace the battery with a new one that matches the voltage.

4 Er.900 DI

DI 34(FunIN.34 Emergency) DI (DI DI)

reason	Confirmation Method	Treatment Measures
DI function 34: Brake, triggered	Check DI function 34: EmergencyStop brake and its corresponding DI terminal logic is set to an effective setting.	Check the operating mode and, if it is safe, disarm the effective signal of the DI brake.

5 Er.909

200W
60Z
400W

reason	Confirmation Method	Treatment Measures
1. Motor wiring, encoder wiring is wrong or bad	Compare the correct wiring diagram to see the indirect line between the motor, driver and encoder.	Connect cables according to the correct wiring diagram; Give priority to using our standard cable; When using self-made cables, please make and connect them according to the hardware wiring instructions.
2. The load is too heavy, the effective output torque of the motor exceeds the rated torque, and the operation continues for a long time	Confirm the overload characteristics of the motor or drive; See if the drive load average (200B-ODh) is greater than 100.0% for an extended period of time.	Replace the high capacity drive and the matching motor; Or reduce the load, increase the acceleration and deceleration time.
3. Acceleration and deceleration are too frequent or the load inertia is too large	Check the mechanical inertia ratio or inertia identification, check the inertia ratio 2008-10h. Confirm the single operation cycle of the servo motor during the cycle operation.	Increase the acceleration and deceleration time.
4. Improper gain adjustment or excessive rigidity	Observe whether the motor vibrates and the sound is abnormal during operation.	Readjust the gain.
5. The drive or motor model is incorrectly set	Check the bus motor model 2000-06h and the driver model 2001-03h.	Look at the driver nameplate and set the correct driver model number (2001-03h) and motor model number to match against section 2.3.
6. The motor is blocked due to mechanical factors, resulting in excessive load during operation	Use the drive commissioning platform or panel to view the running instructions and motor speed (200B-01h) : Run instruction in position mode: 200B-OEh (input position instruction counter) Speed mode operation instruction: 200B-02h (speed instruction) Instruction for running in torque mode: 200B-03h (Internal torque instruction) Confirm whether the corresponding mode, the running command is not 0 or large, and the motor speed is 0.	Rule out mechanical factors.
7. The servo drive is faulty	After powering it off, power it on again.	If the fault is still reported after the power-on, replace the servo drive.

6
Er.920

1, the external brake resistor wiring is poor, off or broken	Whether the resistance value is "0" (infinity); Measure whether the resistance value between P and C is "0" (infinity).	When consistent, connect between P and C. Choose a good cable, and connect both ends of the external brake resistor to P, C.
2. When the built-in brake resistor is used, the cable between the power terminals P and D is short or falls off	Measure whether the resistance value between P and D is "0" (infinity).	Connect P and D directly with a good cable.
3. When using an external brake resistor, the wrong choice of 2002-1Ah(brake resistance setting) is made	Check the parameter value of 2002-1Ah; Measure the value of the external resistance between the actual selection of P and C, and compare it with whether it is too large; Check the parameter value of 2002-1Ch, whether it is greater than the actual selection of the external resistance between P and C.	Reference setting 2002-1Ah=1 (use external resistor, cool naturally) 2002-1Ah=2 (use external resistor, force air cooling)
4. When the external brake resistor is used, the resistance value of the actual selected external brake resistor is too large		Select a resistor with appropriate resistance according to Table 7-3 Bus series brake resistance specifications.
5.2002-1Ch(External brake resistor resistance) Greater than the actual external brake resistor resistance		Set 2002-1Ch to be consistent with the actual selected external resistor resistance value.
6. The input voltage of the main loop exceeds the specification range	Measure whether the input voltage on the driver side of the main loop cable meets the following specifications: 220V driver: RMS: 220V~240V Allowable deviation: -10%~+10%(198V~264V) 380V Drive: Valid value: 380V~440V Allowable deviation: -10%~+10%(342V~484V)	Adjust or replace the power supply according to the specifications on the left.
7. The load moment of inertia ratio is too large	The moment of inertia identification; Or according to mechanical parameters, manually calculate the total inertia of the machine; Whether the actual load inertia ratio exceeds 30.	Choose a large-capacity external brake resistor, and set 2002-1Bh consistent with the actual value;
8. The motor speed is too high, the deceleration process is not completed within the set deceleration time, and it is in a continuous deceleration state during periodic movement	Check the speed curve of the motor during periodic movement to check whether the motor is in a deceleration state for a long time. Look at the speed curve of the motor in a single cycle to calculate whether the maximum braking energy can be fully absorbed.	Selection of large capacity servo drive; If permitted, reduce the load; If permitted, increase the acceleration and deceleration time; If permitted, increase the motor running cycle.
9. The capacity of servo drive or brake resistance capacity is insufficient		
10. The servo drive is faulty	-	Replace the servo drive with a new one.

7 Er.922

2002-1Ch( ) 2002-16h( )

reason	Confirmation Method	Treatment Measures
When using an external brake resistor (2002-1Ah=1 or 2), The resistance value of the external brake resistor is less than the minimum allowed by the drive	Measure the external brake resistance between P and C to see if it is less than 2002-16h.	If so, replace it with the external brake resistor matching the driver, set 2002-1Ch as the selected resistance value, and connect the two ends of the resistor between P and C respectively; If not, set 2002-1Ch as the actual external brake resistor resistance value.

8 Er.939

10

reason	Confirmation Method	Treatment Measures
The motor power line is broken	Check whether the phase current RMS value (200B-19h) is more than 5 times different from the internal torque instruction (200B-03h), while the actual motor speed 200B-01 is less than 1/4 of the rated motor speed.	Check the motor power cable wiring, rewire it, and replace the cable if necessary.

Er.941
9

reason	Confirmation Method	Treatment Measures
Changed the function code that takes effect after the change is powered on again	Confirm that you have changed the function code where "Effective Time" is "Power on Again".	Power it on again.

10 Er.942

200

reason	Confirmation Method	Treatment Measures
Very frequent and a large number of modification of function code parameters, stored EEPROM (200C-OEh=1)	Check whether the host system frequently and quickly modifies the function code.	Check the running mode, for parameters that do not need to be stored in EEPROM, set 200C-OEh to 0 before write operation on the upper computer.

11 Er.950

DI 14(FunIN.14 P-OT) DI

reason	Confirmation Method	Treatment Measures
DI function 14: Forward drive is disabled Move, terminal logic valid	Check whether the DI function is set on the DI terminal of group 2003h 14 Check whether the DI terminal logic for the bit corresponding to the input signal Monitor (200C-OEh) is valid.	Check the operating mode, confirm the premise of safety, give negative command or turn the motor, so that the "forward overrange switch" terminal logic becomes invalid.

12 Er.952

DI 15(FunIN.15 N-OT) DI

reason	Confirmation Method	Treatment Measures
DI function 15: Disable reverse drive Move, the terminal logic is valid.	Check whether the DI terminal of group 2003h is set with DI function 15; Check whether the DI terminal logic for the bit corresponding to the input signal Monitor (200C-OEh) is valid.	Check the operating mode, confirm the premise of safety, give a negative command or turn the motor, so that the "reverse overrange switch" terminal logic becomes invalid.

13 Er.980

reason	Confirmation Method	Treatment Measures
Internal failure of encoder	When the fault is reported after multiple power connections, the encoder fails.	Replace the servo motor.

Er.990
14

1kW
(200A-01h)

reason	Confirmation Method	Treatment Measures
200A-01h=1 (Power input phase failure protection Option: Enable Fault and Warning), for 0.75kW three-phase drivers (the drive is allowed to operate under a single phase power supply, when connected to a single phase power supply, a warning will be reported. Actuator type No. 2001-03h=5),	Confirm whether it is a three-phase driver that allows single-phase operation	If it is actually a three-phase drive, and the main circuit power cable is connected to the three-phase power supply, and still reports a warning, then it is processed according to Er.420; If the actual drive is three-phase specification and single-phase operation is allowed, and the main circuit power cable is connected to the single-phase power supply, and the warning is still reported, then Set the 200A-01h to 0.

15
Er.998

0x6098h

reason	Confirmation Method	Treatment Measures
1. When using the zero-back mode, 6098h entered a non-existent zero-back mode such as 15/16/31/32	View 6098h	Set 6098h correctly

6.

Er.602

Er.220

Er.A40

Er.111

7.

Bus 1
Er.d09

reason	Confirmation Method	Treatment Measures

1. The upper and lower limits of the software location are incorrectly set	Check 0x607D-01h and 0x607D-02h	Set 0x607D correctly to ensure that 607D-1h<607D-2h

2 Er.d10

reason	Confirmation Method	Treatment Measures
1. The origin is offset outside the upper and lower limits of the software position	Look at 0x607D-01h, Ox607D-02h, Ox607Ch	Set Ox607D correctly, guaranteed Ox607D-01h<0x607Ch<0x607D-02h

3 Er.E08

OP OP

reason	Confirmation Method	Treatment Measures
1. When synchronizing communication, receive an exception from the station	Check whether a twisted-pair shielded communication line with shielding function is used; Check to see if the drive is well grounded; See if the drive network port is damaged.	Use a twisted-pair shielded cable with shielding; Follow standard wiring instructions; Check the network connection status through the first nixie tube from the left.
2. During synchronous communication, the master station fails to send data	The synchronization performance of the host computer is poor	Confirm the synchronization performance of the upper computer, and increase the synchronous loss fault tolerance of the slave station 200C-2Dh;
3. Servo enable state, network network from OP to non-OP	Check whether the network state is tangential from OP to non-OP	Check the host computer network state switching program.

4 Er.E09

OP MCU

reason	Confirmation Method	Treatment Measures
1. The master station is incorrectly configured with the communication synchronization clock	Replace a master station, such as the plc comparison test of Beckhoff and Omron	Fix the problem of master station configuration communication
2.EtherCAT communication IN and OUT interfaces are reversed	Check the IN and OUT interfaces to ensure that they are not connected in reverse	Wire the IN and OUT ports in the correct order
3. The slave controller chip is damaged	If the replacement of the master station can not solve the problem, use the oscilloscope to measure the synchronization signal generated by the slave controller chip, if there is no signal, it indicates that the slave controller chip is damaged	Return to the factory for repair and replace the slave controller chip
4. The MCU pin is damaged	Use an oscilloscope to test the synchronization signal generated from the station controller chip, if there is a signal, it indicates that the mcu chip pin is damaged	Return to the factory for repair and replace the MCU chip

5 Er.E11 XML

XM
L

reason	Confirmation Method	Treatment Measures

1. The device configuration file is not burned	After the upper computer scans the slave station, the slave station ID is empty	Burn the device configuration file
2, the drive fails	Drive failure	Replace servo drive

6 Er.E12

reason	Confirmation Method	Treatment Measures
1. Do not burn FPGA firmware	Check if 2001-02h is 01XX.Y	Burn the FPGA firmware
2 Do not burn the device configuration file	After connecting the master station, check whether the first digit tube from the left of the servo panel corresponds to the terminal connected to the network port, and the second digit tube is 1/2/4/8 any digit	Burn the device configuration file
3 Drive failure	Drive failure	Replace servo drive

7 Er.E13

125us 250us

reason	Confirmation Method	Treatment Measures
1. The synchronization period is not an integer multiple of 125us or 250us	Confirm the set value of the synchronization period in the controller	Change the set value of the synchronization period to an integer multiple of 125us or 250us

Er.E15
8

reason	Confirmation Method	Treatment Measures
1. The XML file does not match	If the alarm of synchronization cycle error is too large every time, the XML file does not match	Update the XML file version inside the drive to the latest version.
2. The controller synchronization cycle error is large	Accidental synchronization cycle error is too large; Observe the phase of SYNC and IRQ through Huichuan background oscilloscope tool to see whether the signal is stable	Check the upper computer.

9 Er.E16 MCU ESC

MCU

reason	Confirmation Method	Treatment Measures
1. The ESC software is not burned	Check H0233. If HO2-33=0, the ESC software may not be burned	Reburn the ESC software.
2. The ESC software is abnormal	After the ESC software is burned again, if H02-33=0, the ESC software is abnormal	Return to the factory for repair.
3. The ESC software version does not match	Check H0233. If H0233<352.30/382.30, the ESC software version does not match	Burn software versions 352.30/382.30 or higher.

10 Er.E17 MCU ESC

MCU

reason	Confirmation Method	Treatment Measures
1. The MCU and ESC software write check fails	After repeated power-on and power-off, the MCU and ESC software write verification fails.	Return to factory for repair.

1000h

1000h

Child rope rope lead	Factory setting Citation	Name	Accessibility	PDO map	data type	unit	Data range	
1000	00	Type of drive	RO	NO	Uint32	-	-	0x00020192
1008	00	Driver name	RO	NO	-	-	-	ECAT
1009	00	Hardware version	RO	NO	-	-	-	Depends on the software version
100A	00	Software version	RO	NO	-	-	-	Depends on the hardware version
1018		ID object	RO	NO	Uint32		OD data range	OD default
	00	The largest subcord contained in the ID object Citation number	RO	NO	Uint8	-	-	04 hex
	01	Vendor ID	RO	NO	Uint32	-	-	0010 0000 hex
	02	Product code	RO	NO	Uint32	-	-	Ox000C0108
	03	Revision number	RO	NO	Uint32	-	-	0x00010001
1C00		home software version	RO	NO	Uint32		OD data range	OD default
	00	Maximum subindex number for the type of synchronous management communication	RO	NO	Uint8	-	-	04 hex
	01	SMO communication type	RO	NO	Uint8	-	-	01hex
	02	SM1 Communication type	RO	NO	Uint8	-	-	02hex
	03	SM2 Communication type	RO	NO	Uint8	-	-	03hex
	04	SM3 Communication type	RO	NO	Uint8	-	-	04hex
1600		RPDO1 Mapping object 1 st	RW	NO	Uint32		OD data range	OD default
	00	Number of mapping objects supported by RPDO1	RW	NO	Uint8	-	0 ~ 10	3
	01	The first mapping object	RW	NO	Uint32	-	0-4294967295.	6040 0010
	02	Second mapping object	RW	NO	Uint32	-	0-4294967295.	607A 0020
	03	Third mapping object	RW	NO	Uint32	-	0-4294967295.	60B8 0010
	04	The fourth mapping object The fifth mapping object	RW	NO	Uint32	-	0-4294967295.	-
	05		RW	NO	Uint32	-	0-4294967295.	-
	06	The sixth mapping object	RW	NO	Uint32	-	0-4294967295.	-
	07	The seventh mapping object	RW	NO	Uint32	-	0-4294967295.	-
	08	Eighth mapping object	RW	NO	Uint32	-	0-4294967295.	-
	09	The ninth mapping object	RW	NO	Uint32	-	0-4294967295.	-
	OA	The tenth mapping object	RW	NO	Uint32	-	0-4294967295.	-
1701		RPDO1 Map Object 258th	RO	NO	Uint32		OD data range	OD default
	00	Number of mapping objects supported by RPDO258	RO	NO	Uint8	-	-	04hex
	01	The first mapping object	RO	NO	Uint32	-	-	6040 0010
	02	Second mapping object Third mapping object	RO	NO	Uint32	-	-	607A 0020
	03		RO	NO	Uint32	-	-	60B8 0010
	04	Fourth mapping object	RO	NO	Uint32	-	-	60FE 0120

Child rope rope lead		Name	Accessibility	PDO map	data type	unit	Data range	
		Factory setting of the RPDO1 mapping object 259th	RO	NO	Uint32		OD data range	
		OD Default value Map supported by RPDO259						
	00	07 hex Number of objects	RO	NO	Uint8	-	-	
	01	The first mapping object	RO	NO	Uint32	-	-	6040 0010
	02	Second mapping object	RO	NO	Uint32	-	-	607A 0020
1702	03	Third mapping object	RO	NO	Uint32	-	-	60FF 0020
	04	Fourth mapping object	RO	NO	Uint32	-	-	6071 0010
	05	Fifth mapping object	RO	NO	Uint32	-	-	6060 0008
	06	The sixth mapping object	RO	NO	Uint32	-	-	60B8 0010
	07	The seventh mapping object	RO	NO	Uint32	-	-	607F0020OD
		RPDO1 Mapping object 260th	RO	NO	Uint32		OD data range	Default value
	00	Number of mapping objects supported by RPDO260	RO	NO	Uint8	-	-	07 hex
	01	The first mapping object	RO	NO	Uint32	-	-	
	02	Second mapping object	RO			-	-	6040 0010 607A 0020
1703	03	Third mapping object	RO	NO NO	Uint32	-	-	60FF 0020
	04	Fourth mapping object	RO	NO	Uint32 Uint32	-	-	6060 0008 60B8 0010
	05	Fifth mapping object	RO	NO NO	Uint32	-	-	60EO 0010
	06	The sixth mapping object	RO		Uint32 Uint32	-	-	
	07	The seventh mapping object	RO	NO	Uint32	-	-	60E1 0010OD
		RPDO1 Mapping object 261st	RO	NO			OD data range	Default value
	00	Number of mapping objects supported by RPDO261	RO	NO	Uint8 Uint32	-	-	09 hex
	01	The first mapping object	RO	NO		-	-	6040 0010
	02	Second mapping object	RO	NO	Uint32	-	-	607A 0020
	03	Third mapping object	RO	NO	Uint32	-	-	60FF 0020
1704	04	Fourth mapping object	RO	NO	Uint32	-	-	6071 0010
	05	Fifth mapping object	RO	NO	Uint32	-	-	6060 0008
	06	The sixth mapping object	RO	NO		-	-	60B8 0010
	07	The seventh mapping object	RO	NO	Uint32 Uint32	-	-	607F0020
	08	Eighth mapping object	RO	NO	Uint32	-	-	60EO 0010
	09	Ninth mapping object	RO	NO	Uint32	-	-	60E1 0010
		RPDO1 Mapping object 262nd	RO	NO	Uint32		OD data range	OD default
	00	Number of mapping objects supported by RPDO262	RO	NO	Uint8	-	-	08hex
	01	First mapping object	RO	NO	Uint32	-	-	6040 0010
	02	Second mapping object Third mapping object	RO	NO	Uint32	-	-	607A 0020
1705	03		RO			-	-	60FF 0020
	04	Fourth mapping object	RO	NO NO RO	Uint32 Uint32	-	-	6060 0008
	05	Fifth mapped object			Uint32	-	-	60B8 0010
	06	Sixth mapped object seventh mapped object		NO RO	Uint32 Uint32	-	-	60EO 0010
	07			NO RO		-	-	60E1 0010
	08	Eighth mapping object	RO	NO	Uint32	-	-	60B2 0010

Child rope rope lead		Name	Accessibility	PDO map	data type	unit	Data range	
		Factory setting refers to TPDO1 mapping object 1st	RW	NO	Uint32	-	OD data range	OD default
	00	Map object RW supported by TPDO1 7 counts		NO	Uint8	-	0 to 10	
	01	The first mapping object	RW	NO	Uint32	-	0 to 42949672956041 0010	
	02	Second mapping object	RW	NO	Uint32	-	0-42949672956064 0020	
	03	Third mapping object	RW	NO	Uint32	-		
0~4294967295 60B9 0010 1A00	04	Fourth mapping object	RW	NO	Uint32	-	0~4294967295 60BA 0020	
	05	Fifth mapping object	RW	NO	Uint32	-	0~4294967295 60BC0020	
	06	The sixth mapping object	RW	NO	Uint32	-	0-4294967295 603F0010	
	07	The seventh mapping object	RW	NO	Uint32	-	0~4294967295 60FD0020	
	08	Eighth mapping object	RW	NO	Uint32	-	0 ~ 4294967295	-
	09	Ninth mapping object	RW	NO	Uint32	-		-
		0-4294967295 O A Tenth mapping object	RW	NO	Uint32	-		-
			RO	NO	Uint32	-	OD data range	OD default
	00	Map RO supported by TPDO258 Number of objects		NO	Uint8	-	-	8
	01	The first mapping object		NO	Uint32	-	-	603F0010
	02	Second mapping object	RO RO	NO	Uint32	-	-	6041 0010
1B01	03	Third mapping object	RO	NO	Uint32	-	-	6064 0020
	04	Fourth mapping object	RO RO	NO		-	-	6077 0010
	05	The fifth mapped object The sixth mapped object		NO	Uint32 Uint32	-	-	60F40020
	06		RO	NO	Uint32	-	-	60B90010
	07	The seventh mapping object	RO	NO	Uint32	-	-	
	08	Eighth mapping object	RO	NO	Uint32 Uint32	-	-	60BA002060FD00200D Default value
		TPDO259 Mapping object	RO	NO		-	OD data range	
	00	Number of mapping objects supported by TPDO259	RO	NO	Uint8	-	-	9
	01	The first mapping object	RO	NO	Uint32	-	-	603F0010
	02	Second mapping object	RO	NO	Uint32	-	-	6041 00106064
	03	Third mapping object	RO	NO		-	-	0020
1B02	04	The fourth mapping object	RO	NO	Uint32	-	-	6077 0010
	05	Fifth mapping object	RO		Uint32	-	-	6061 0008
	06	The sixth mapping object	NO RO		Uint32	-	-	60B9 0010
	07	The seventh mapping object	NO RO	NO	Uint32	-	-	
	08	Eighth mapping object	RO	NO	Uint32	-	-	60BC0020
	09	Ninth mapping object	RO	NO	Uint32	-	-	
		TPDO260 Mapping object	RO	NO	Uint32	-	OD Data Range	
	00	Number of mapping objects supported by TPDO260	RO	NO	Uint8	-	-	10
	01	The first mapping object	RO	NO	Uint32	-	-	603F0010
	02	Second mapping object	RO	NO	Uint32	-	-	6041 00106064
	03	Third mapping object	RO		Uint32	-	-	0020
1B03	04	Fourth mapping object	NO RO	NO	Uint32	-	-	
	05	The fifth mapped object The sixth mapped object	RO NO RO			-	-	6077 0010 60F4 0020
	06		Uint32 RO	NO		-	-	6061 0008
	07	The seventh mapping object The eighth mapping object the ninth mapping object	Uint32 RO	NO		-	-	60B9 0010 60BA 0020
	08		Uint32 RO	NO		-	-	60BC0020
	09			NO	Uint32	-	-	
	OA	The tenth mapping object	RO	NO	Uint32	-	-	60FD0020

Child rope rope lead		Factory setting reference TPDO261 mapping object Name	Accessibility	PDO map	data type	unit	Data range	
		OD Default Mapping supported by TPDO261	RO	NO	Uint32	-	OD data range	
	00	10 Number of objects	RO	NO	Uint8	-	-	
	01	The first mapping object	RO	NO	Uint32	-	-	603F0010
	02	Second mapping object	RO	NO	Uint32	-	-	6041 0010
	03	Third mapping object	RO	NO	Uint32	-	-	
6064 0020 1B04	04	Fourth mapping object	RO	NO	Uint32	-	-	6077 0010
	05	Fifth mapping object	RO	NO	Uint32	-	-	6061 0008
	06	The sixth mapping object	RO	NO		-	-	60F4 0020
	07	The seventh mapping object	RO	NO	Uint32 Uint32	-	-	60B9 0010
	08	The eighth mapped object The ninth mapped object	RO	NO	Uint32	-	-	60BA 0020
	09		RO	NO	Uint32 Uint32	-	-	60BC0020
	OA	The tenth mapping object	RO	NO		-	-	606C0020
	Manage 2_RPDO assignments synchronously		RW	NO	Uint16	-	OD data range	OD default
1C12	00	Sync Management 2 Maximum subindex number assigned by RPDO	RW	NO	Uint8	-	0 ~ 1	1
	01	Index of objects assigned by RPDO	RW	YES	Uint16	-	0 ~ 65535	0x1701
	Manage 2_TPDO allocations synchronously		RW	NO	Uint16	-	OD data range	OD default
1C13	00	Sync management 2 Maximum subindex assigned by TPDO Number	RW	NO	Uint8	-	0 ~ 1	1
	01	The index of the object assigned by TPDO	RW	YES	Uint16	-	0 ~ 65535	0x1B01
	Synchronization management 2 Synchronize output parameters		RO	NO	Uint16	-	OD data range	OD default
	00	Sync Management 2 The maximum subindex number of the sync parameter	RO	NO	Uint8	-	-	0x20
	01	Sync Type	RO	NO	Uint16	-	-	0x0002
	02	Cycle time	RO	NO	Uint32	ns	-	0
1C32	04	Types of synchronization supported	RO	NO	Uint16	-	-	0x0004
	05	Minimum cycle time	RO	NO	Uint32	ns	-	0x0001E848
	06	Calculate with copy time	RO	NO	Uint32	ns	-	-
	09	Delay time	RO	NO	Uint32	ns	-	-
	20	Sync errors	RO	NO	BOOL	-	-	-
	Synchronization management 2 Synchronize input parameters		RO	NO	OD data type	-	OD Data Range	OD default
	00	Sync Management 2 The maximum subindex number of the sync parameter	RO	NO	Uint8	-	-	0x20
	01	Sync Type	RO	NO	Uint16		-	0x0002
1C33	02	Cycle time	RO	NO	Uint32	ns	-	0
	04	Types of synchronization supported	RO	NO	Uint16	-	-	0x0004
	05	Minimum cycle time calculated with copy time	RO	NO	Uint32		-	0x0001E848
	06		RO	NO	ns Uint32		-	-
	09	delay time	RO	NO	ns Uint32	ns	-	-
	20	Sync errors	RO	NO	BOOL	-	-	-

2000h

Parameters (sixteen function codes) Factory value (decimal) index Subindex		Name	Accessible mapping Interrogative attributes		Data Type	Minimum Units	Set range	Set effective base)	
Mode Mode 2000/H00 servo motor parameters Stop can again 01h									
2000		H00-00 Motor number	RW	-	Uint16	-	0 ~ 65535	14000h	alter Electrify
2000	03h	H00-02 is not a label	RO	-		-	0	Oh	Display parameter There is no
2000	05h	H00-04 encoder version	RO	-	Uint16 Uint16 Uint16	-	0	-	Display parameters There is no
2000	06h	H00-05 number Bus motor number	RO	-		-	0-65535.	0	Display parameters There is no
2001/H01 Drive parameters									
2001	01h	HO1-00 MCU software version number	RO	-	Uint8	-	0 ~ 6553.50 ~ 6553.5	0	Display parameters There is no
2001	02h	H01-01 FPGA Software Version	RO	-	Uint16	-		0	Display parameters There is no
2001	03h	HO1-02 Servo drive number	RW	-	Uint16	-	0-65535.	0	Shutdown to change power on again
2002/H02 Basic control parameters									
2002	01h	H02-00 Control mode selection	RW	-	Uint16	-	0: Speed mode 1: Position mode 2: Torque mode 3: Torque mode → Speed mode 4: Speed mode → position mode 5: Torque mode → position mode 6: Torque mode → speed mode → Location Mixed mode 7: Undefined 8:CANopen bus control 9:EtherCAT bus control	9: EtherCAT	Downtime changes take effect immediately
2002	02h	H02-01 Absolute value system selection	RW	-		-	0: Incremental position mode 1: Absolute position linear mode 2: Absolute position rotation mode 3: Absolute position linear mode, no encoder overflow alarm	0	Shutdown to change power on again
2002	03h	H02-02 Rotate positive direction selection	RW	-	Uint16	-	0: The CCW direction is the positive turn direction 1: The CW direction is the positive turning direction	0	Shutdown to change power on again
2002	04h	H02-03 Output pulse phase	RW	-	Uint16	-	0:A ahead of B 1:A lags behind B	0	Shutdown can be changed to power on again |
2002	06h	H02-05 Servo OFF stop mode selection	RW	-	Uint16	-	0: free stop, keep the free running state 1: zero speed stop, keep free running state	0	Downtime may! Changes in effect Now
2002	07h	H02-06 Fault NO.2 Select the shutdown mode	RW	-	Uint16	-	0: free stop, keep free state 1: Stop at zero speed and remain free	0	Stop can be changed to take effect Now
2002	08h	H02-07 Select the mode of overdrive shutdown	RW	-	Uint16	-	0: free stop, keep the free running state 1: zero speed stop, position to keep locked state	1	Downtime for changes to take effect Now

Parameters (sixteen function codes Way Way Index		Set effective base) Out value (decimal	Name	Accessible mapping Interrogative attribute		Data Type	Minimum Units	Set range		
		Subindex fault NO.1 Stop						0: Free parking, keep free machine mode selection		
2002	09h	H02-08		RW	-	Uint16	-	Running state	0	Downtime available immediately
			Changes take effect Hold gate output ON							
2002	OAh	H02-09	Run immediately to command receive delay	RW	-	Uint16 1ms		0~500	250	
			Can change the static state when taking effect, lock output OFF to							
2002	OBh	H02-10	150 The motor has no power delay	RW		Uint16 1ms		1~1000		Running immediately
			Can change rotation status when effective, hold							
2002	OCh	H02-11 RW when the gate output is OFF			-	Uint16 1rpm		0-3000	30	Run immediately Variable to take effect
			Turn threshold							
2002	ODh	H02-12	Rotation state, servo enable OFF to lock output OFF delay	RW	-	Uint16 1ms		1-1000	500	Run neutral for changes to take effect
2002	10h	H02-15	LED warning display selection	RW	-		-	0: A warning message is displayed immediately 1: No warning message is displayed	0	Downtime takes effect immediately with changes
						Uint16				
2002	16h	H02-21	The minimum power consumption resistance allowed by the driver	RO	-	Uint16	1Ω	0 ~ 1000	-	Display parameters There is no
2002	17h	H02-22	Built-in brake resistance power	RO	-		1W	1-65535	-	Show parameters There is no
2002	18h	H02-23	Built-in brake resistor resistance value	RO	-	Uint16 Uint16 Uint16	1Ω	1-1000	-	Display parameters There is no
2002	19h	H02-24	Heat dissipation coefficient of resistance	RW	-		-	10 to 100	30	Downtime for immediate changes to take effect
2002	1Ah	H02-25	Brake resistance setting	RW	-	Uint16	-	0: Use the built-in brake resistor 1: Use an external brake resistor and cool it naturally 2: Use an external brake resistor and force air cooling 3: Do not use brake resistance, rely on capacitive absorption	0	Downtime takes effect immediately with changes
2002	1Bh	H02-26	External brake resistor Power capacity External	RW	-		W	1-65535	40	Shutdown with immediate change effect
2002	1Ch	H02-27	brake resistor resistance	RW	-	Uint16 Uint16 Uint16	1Ω	1-1000	50	Shutdown with immediate change effect
2002	20h	H02-31	System parameters Initialize panel	RW	-		-	0: No operation 1: Restore factory Settings 2: Clear the fault record	0	
2002	21h	H02-32	default display function	RW	-	Uint16	-	0-99.	50	Changes take effect immediately while running
2003/H03 terminal input parameters										
2003	01h	H03-00	Assignment of the effective DI function 1	RW	-	Uint16	-	0~65535 Uint16	0	Power-on operation can be changed again power-on
2003	02h	H03-01	Assignment of the effective DI function 2 Select	RW	-		-	0~65535 Uint16	0	operation can be changed again 1 through the shutdown in
2003	03h	H03-02	the function of the DI1 terminal	RW	-		-	0-39	14	operation can be changed to take effect

Parameters (sixteen function codes Factory Mode Mode index Subindex			Set effective mapping (decimal)	Interrogative attribute		Data Type	Minimum Units	Set range		
2003	04h	H03-03	1: High level valid DI1 terminal logic RW Select		-	Uint16	-	0: Indicates that the low level is valid 2: indicates that the rising edge is valid 3: indicates that the falling edge is valid 4: indicates that both rising and falling edges are valid	0	| stops when it is running Changeable to take effect
2003	05h	H03-04	DI2 terminal function Select	RW	-	Uint16	-	0-39	15	Changes take Downtime effect while running
2003	06h	H03-05	DI2 terminal logical selection	RW	-	Uint16	-	0: The low level is valid 1: indicates that the high level is valid 2: indicates that the rising edge is valid 3: indicates that the falling edge is effective 4: indicates that both rising and falling edges are valid	0	In-flight downtime takes effect with changes
2003	07h	H03-06	DI3 terminal function Select	RW	-	Uint16	-	0-39	0	In-flight downtime takes effect with changes
2003	08h	H03-07	DI3 terminal logical selection	RW	-	Uint16	-	0: indicates that the low level is valid 1: indicates that the high level is valid 2: indicates that the rising edge is valid 3: indicates that the falling edge is effective 4: indicates that both rising and falling edges are effective	0	In-flight downtime takes effect with changes
2003	09h	H03-08	DI4 terminal function Select	RW	-	Uint16	-	0-39	0	In-flight downtime takes effect with changes
2003	OAh	H03-09	DI4 Terminal logical selection	RW	-	Uint16	-	0: indicates that the low level is valid 1: indicates that the high level is valid 2: indicates that the rising edge is effective 3: indicates that the falling edge is effective 4: indicates that both rising and falling edges are valid	0	In-flight downtime takes effect with changes
2003	OBh	H03-10	DI5 Terminal function Select	RW	-	Uint16	-	0-39	0	In-flight downtime takes effect with changes
2003	OCh	H03-11	DI5 Terminal logical selection	RW	-	Uint16	-	0: indicates that the low level is valid 1: indicates that the high level is valid 2: indicates that the rising edge is valid 3: indicates that the falling edge is effective 4: indicates that both rising and falling edges are effective	0	In-flight downtime takes effect with changes
2003	ODh	H03-12	DI6 terminal function Select	RW	-	Uint16	-	0-39	0	In-flight downtime takes effect with changes
2003	OEh	H03-13	DI6 terminal logical selection	RW	-	Uint16	-	0: indicates that the low level is valid 1: indicates that the high level is valid 2: Indicates that the rising edge is valid 3: indicates that the falling edge is effective 4: indicates that both rising and falling edges are valid	0	In-flight downtime takes effect with changes
2003	11h	H03-16	DI8 terminal function Select	RW	-	Uint16	-	0-39	38	In-service downtime takes effect with changes
2003	12h	H03-17	DI8 terminal logical selection	RW	-	Uint16	-	0: indicates that the low level is valid 1: indicates that the high level is valid 2: Indicates that the rising edge is valid 3: indicates that the falling edge is effective 4: indicates that both rising and falling edges are valid	1	Stop in operation can be changed to take effect
2003	13h	H03-18	The DI9 terminal function is damaged	RW	-	Uint16	-	0-39	31	Stop in operation can be re-released

Parameter (hexadecimal) Index	Subindex	Function code (decimal)	Name	Accessible maps interrogative attribute	Minimum	Data Type	Units	Set range	Factory defaults	Set effective mode Mode
2003	14h	H03-19	DI9 terminal logical selection	RW	-	Uint16	-	0: indicates that the low level is valid 1: indicates that the high level is valid 2: Indicates that the rising edge is valid 3: indicates that the falling edge is effective 4: indicates that both rising and falling edges are valid	0	Changes take effect while running Downtime
2003	23h	H03-34	Power on the valid DI function allocation 3	RW	-	Uint16	-	0 ~ 655350 ~ 65535	0	Power-on can be changed again while running
2003	24h	H03-35	Power on valid DI function allocation 4	RW	-	Uint16	-		0	Power-on can be changed again while running
2004/H04 terminal output parameters										
2004	01h	H04-00	DO1 terminal function Select	RW	-	Uint16	-	0: undefined 1: Servo is ready 2: Motor rotation 3: Zero speed signal 4: Consistent speed 5: Positioning complete 7: Torque limit 8: Speed limit 9: Hold the brake 10: Warning 11: Failure 12: Output 3-digit alarm code 13: Output 3-digit alarm code 14: Output 3-digit alarm code 18: Torque arrives 19: Speed arrived 20: Initial Angle identification completed	1	In-flight downtime can take effect with changes
2004	02h	H04-01	DO1 terminal logic level selection	RW	-	Uint16	-	0: indicates that the output L is low when valid (optocoupler conduction) 1: Indicates that output H is high when active (optocoupler off)	0	In-flight downtime takes effect with changes
2004	03h	H04-02	DO2 terminal function Select	RW	-	Uint16	-	0: undefined 1: Servo is ready 2: Motor rotation 3: Zero speed signal 4: Consistent speed 5: Positioning is complete 7: Torque limit 8: Speed limit 9: Hold the brake 10: Warnings 11: Fault 12: Output 3-digit alarm code 13: Output 3-digit alarm code 14: Output 3-digit alarm code 18: Torque arrives 19: Speed arrived 20: Initial Angle identification completed	5	In-flight downtime can take effect with changes
2004	04h	H04-03	DO2 terminal logic level selection	RW	-	Uint16	-	0: indicates that the output L is low when valid (optocoupler conduction) 1: Indicates that output H is high when active (optocoupler off)	0	Changes take effect while running Downtime

Parameters (16 function codes) Index	Subindex	(decimal)	Name	Accessible maps		Data Type	Units	Set range	Factory defaults	Settings Effective method Ways
2004	05h	H04-04	DO3 terminal function Select	RW	-	Uint16	-	0: Undefined 1: Servo is ready 2: Motor rotation 3: Zero speed signal 4: Consistent speed 5: Positioning complete 7: Torque limit 8: Speed limit 9: Hold the brake 10: Warnings 11: Malfunction 12: Output 3-digit alarm code 13: Output 3-digit alarm code 14: Output 3-digit alarm code 18: Torque arrives 19: Speed arrived 20: Initial Angle identification completed	3	Changes take effect while running Downtime
2004	06h	H04-05	DO3 terminal logic level selection	RW	-	Uint16	-	0: indicates that the output L is low when valid (optocoupler conduction) 1: Indicates that output H is high when active (optocoupler off)	0	In-flight downtime takes effect with changes
2004	17h	H04-22	DO source selection	RW	-	Uint16	-	Bit0:DO1 source 0:DO1 given by the drive 1:DO1 by communication given Bit1:DO2 source 0:DO2 given by the drive 1:DO2 is given by communication Bit2:DO3 source 0:DO3 is given by the drive 1:DO3 is given by communication	0	Downtime takes effect immediately with changes
2004	33h	H04-50	A01 signal selection	RW	-	Uint16	-	0: Motor speed (1V/1000rpm) 1: Speed command (1V/1000rpm) 2: Torque instruction (1V/100 times rated torque) 3: Position deviation (0.05V/1 instruction unit) 4: Position deviation (0.05V/1 encoder unit) 5: Position instruction speed (1V/1000 rpm) 6: Positioning complete (1V/1000rpm) 7: Speed feed forward	0	Run neutral for changes to take effect
2004	34h		AO1 bias quantity voltage	RW	-	Uint16	mV	- 10000-10000	5000	Run neutral for changes to take effect Run neutral for changes to take effect
2004	35h	H04-51H04-52AO1 ratio		RW	-	Uint16	-	-9999-9999 (unit 0.01 times)	100	

Parameters (sixteen function codes Method Index	Subindex	Name decimal)	Active base	Accessible mapping Interrogative attribute		Data Type	Minimum Units	Set range	Factory defaults	Settings Way
2004		H04-53	3: Position deviation (0.05V/136h	RW	-	Uint16	Immediate AO2 signal selection in operation"	0: Motor speed (1V/1000rpm) 1: Speed command (1V/1000rpm) 2: Torque instruction (1V/100 times rated torque) Instruction unit) 4: Position deviation (0.05V/1 encoder unit) 5: Position instruction speed (1V/1000 rpm) 6: Positioning is complete 7: Speed feed forward (1V/1000rpm)	0	Changeable to take effect
2004	37h	H04-54	AO2 offset voltage	RW	-	Uint16	1mV	- 10000-10000	5000	Run neutral for changes to take effect
2004	38h	H04-55	AO2 multiplier	RW	-	Uint16	0.01 times	-9999~9999 (unit 0.01 x)	100	Run neutral for changes to take effect
2005h/H05 Position Control parameters										
2005	11h	H05-16	Clear action selection	RW	-	Uint16	-	0: servo OFF and clear position deviation in case of failure 1: Clear the position deviation pulse when a fault occurs 2: Entered through DI ClrPosErr signal clears position deviation	0	Downtime for immediate change to take effect
2005	12h	H05-17	Encoder frequency dividing pulse number	RW	-	Uint16	1P/Rev	35 ~ 32767	2500	Downtime can be changed again Power on
2005	14h	H05-19	Speed feedforward control selection	RW	YES	Uint16	-	0: No speed feedforward 1: Internal speed feedforward 2: Use 60B1h as speed feedforward input	1	Downtime can be changed immediately Effective
2005	1Fh	H05-30 H05-35	Origin return mode	RW	-	Uint16	-	0-9	0	Downtime takes effect immediately with changes
2005	24h		Limit the time to find the origin	RW	-	Uint16	10ms	0 ~ 65535	50000	Run neutral for changes to take effect
2005	27h	H05-38	Servo pulse output source selection	RW	-	Uint16	-	0: encoder frequency division output 1: pulse command synchronous output 2: Use the full closed loop function and use the internal encoder for frequency division output	0	Shutdown to change power on again
2005	2Ah	H05-41	Z-pulse output polarity selection set	RW	-	Uint16	-	0: positive output (high level when Z-pulse is active) 1: Negative polarity output (low level when Z pulse is active)	1	Downtime can be changed to power on again
2005	2Dh		Encoder multi-turn data bias	RW	-	Uint16	-	0 ~ 65535	0	Downtime can be changed immediately
2005	2Fh	H05-44 H05-46 H05-48	Multi-turn absolute position bias (low 32 bits)	RW	-	int32	1 Encoder unit 1	-231- (231-1)	0	Effective downtime can be changed immediately
2005	31h		Multi-turn absolute position bias (high 32 bits)	RW	-	int32	Encoder unit	-231- (231-1)	0	Effective downtime allows changes to take effect immediately

Parameter (hexadecimal) Way Way Index	Sub-Index	Function code	Effective name (decimal)	Accessible map Interrogative attribute		Data Type	Minimum Units	Set range	Factory defaults	Settings
2005	33h	H05-50	Mode 2 Mechanical tooth multi-circle absolute position	RW	-	Uint16	-	1-65535	1	Downtime can be changed Now
2005	34h	H05-51	Mode 2 Mechanical tooth Effect wheel ratio (molecule) many turns absolute position	RW	-	Uint16	-	1-65535	1	Downtime available immediately Changes
2005	35h	H05-52	Effective wheel ratio (denominator) Absolute Position rotation mode Load rotation _ Number of pulses in the circle (low 32 bits)	RW	-	Uint32	1 Code Organ unit	0~ (232-1)	0	Downtime available immediately Change Effective
2005	37h	H05-54	Absolute position rotation mode Number of pulses in the load rotation circle (high 32 bits)	RW	-	Uint32	1 encoder unit	0~ (232-1)	0	Downtime can be changed immediately Effective
2005	-	H05-60	Positioning completion hold time	-	-	Uint16	1ms	0-3000.	0	Run neutral for the change to take effect
2005	3Eh	H05-61	Location reaches threshold unit selection	RW	-	Uint16 Uint16 1rpm		0: indicates the encoder unit 1: instruction unit	1	Downtime takes effect immediately with changes
2006/H06 Speed Control parameters										
2006	05h	H06-04	Point speed set value	RW	-			0 ~ 6000	100	Run neutral for changes to take effect
2006	OCh	H06-11	Torque feedforward control selection	RW	-	Uint16	-	0: no torque feedforward 1: Internal torque feedforward 2: Use 60B2h as torque feedforward input	1	Run neutral for the change to take effect
2006	10h		Zero fixed speed threshold	RW	-	Uint16	1rpm	0-6000.	10	Run neutral changes take effect
2007/H07 Torque control parameters		H06-15								
2007	06h	H07-05 H07-06	Torque instruction filter time constant	RW	-	Uint16	0.01 ms	0 to 3000(units 0.01)	79	Run neutral to make changes take effect Run neutral to make changes take effect
2007	07h		The second torque instruction filters the time constant	RW	-	Uint16	0.01 ms	0~3000(unit 0.01)	79	
2007	08h	H07-07	Torque limiting source	RW	-	Uint16	-	0: positive or negative internal torque limit 1: Plus or minus external torque limits (Leigh Use P-CL, N-CL) 2:EtherCAT plus and minus external torque limits 3: Torque limit with minimum values of positive and negative external torque limits and EtherCAT positive and negative external torque limits (using P-CL, N-CL) 4: Switch between plus-negative internal torque and EtherCAT plus-negative external torque limits (using P-CL, N-CL)	2	Run neutral for the change to take effect
2007	OAh	H07-09	Positive internal torque limit Reverses the internal torque limit positive external torque limit	RW	-	Uint16 0.10% Uint16		0~3000(unit 0.1%)	3000	Changes take effect when running neutral Now
2007	OBh	H07-10		RW	-	0.10% Uint16		0 to 3000(0.1% in units)	3000	Changes take effect when running neutral
2007	Och	H07-11		RW	-		0.10%	0 to 3000(0.1% in units)	3000	changes take effect

Parameters (sixteen function codes Method index		Name (decimal)		Effective base)	Accessible mapping Interrogative attribute		Data Type	Minimum Units	Set range	Factory value mode	Settings
2007	ODh	H07-12	Subindex negative external torque limit 3000 system		RW	-	Uint16	0.10%	0~3000(unit 0.1%)		Immediately in operation Variable to take effect
2007	10h	H07-15	The shutdown can immediately stop torque		RW	-	Uint16	0.10%	0~3000(unit 0.1%)	1000	Change Effective
2007	12h	H07-17 in run	1:EtherCAT External Speed limit Source of speed limit 1 Select		RW	-	Uint16	-	0: Internal speed limit system 2: Select through FunIN.36 2007-14h/2007-15h as internal speed limit		At once Changeable take effect
2007	14h	H07-19	Torque control forward speed limit value/torque control speed limit value 1		RW	-	Uint16	1rpm	0 ~ 6000	3000	Run neutral for changes to take effect
2007	15h	H07-20	Reverse speed limit value for torque control/Speed limit value for torque control 2		RW	-	Uint16	1rpm	0 ~ 6000	3000	Run neutral for changes to take effect
2007	16h	H07-21	Torque reaches the baseline		RW	-	0.10% Uint16		0-3000(unit 0.1%)	0	Run neutral for changes to take effect
2007	17h	H07-22	torque reaches the effective		RW	-			0~3000(unit 0.1%)	200	Run neutral changes take effect immediately in run
2007	18h	H07-23	torque reaches the invalid value		RW	-	0.10% Uint16		0 to 3000(0.1% in units)	100	Change effective
2007	29h	H07-40	Speed limited window in torque mode		RW	-	0.10% Uint16	0.1ms	5 to 300(in 0.1ms)	10	Run neutral Changes take effect
2008/H08 Gain class parameters											
2008	01h	H08-00	Velocity loop gain		RW	-	Uint16	0.1Hz	1~20000 (Unit: 0.1Hz)	250	Run neutral for changes to take effect
2008	02h	H08-01	Velocity loop integral time constant		RW	-	Uint16	0.01 ms	15~51200 (Unit: 0.01ms)	3183	Run neutral changes take effect immediately in run
2008	03h	H08-02	Position loop gain		RW	-	Uint16	0.1Hz Uint16	1~20000 (Unit: 0.1Hz)	400	Changes can take effect in operation immediately
2008	04h	H08-03	Second velocity loop gain		RW	-		0.1Hz	1~20000 (Unit: 0.1Hz)	400	Change effective
2008	05h	H08-04	Second velocity loop integral time constant		RW	-	Uint16	0.01 ms	15~51200 (Unit: 0.01 ms)	2000	Run neutral to make changes take effect
2008	06h	H08-05	second position loop gain		RW	-	Uint16	0.1Hz	0~20000 (Unit: 0.1Hz)	640	Run neutral to make changes take effect
2008	09h	H08-08	The second gain mode is set		RW	-	Uint16	-	0: The first gain is fixed, and the external DI is used for P/PI switching 1: The first gain and second gain switchover are valid, and the switchover condition is H0809	1	Run neutral for the change to take effect

Accessible system) Way Way Index	Subindex (decimal)	Function code	Set effective name	Interrogative attribute	Data Type	Minimum Units	Set range	Factory defaults	
	0 parameter (sixteen						0: First gain fixed (PS) 1: Switching using external DI (PS) 2: Torque instruction large (PS) 3: Speed instruction large (PS) 4: The speed command has a large change rate (PS) 5: indicates the high and low speed threshold of the speed command (PS) 6: Large position deviation (P) 7: Have position instruction (P) 8: Position incomplete (P) 9: Actual speed (P) 10: Have position command + actual speed (P)		
2008	OAh	H08-09	Gain switching conditions	RW selection on the fly	Uint16	-			Can be changed | takes effect
2008	OBh	H08-10	Gain switching delay time	RW	Uint16	0.1ms	0~10000 (unit: 0.1ms)	50	Run neutral for the change to take effect
2008	Och	H08-11	Gain switching level	RW	Uint16	-	0-200000-20000	50	Run neutral for the change to take effect
2008	ODh	H08-12	Gain switching delay	RW	Uint16	-		30	Run neutral for the change to take effect
2008	OEh	H08-13	Position gain switching time	RW	0.1ms Uint16		0~10000 (unit: 0.1ms)	30	Run neutral for the change to take effect
2008	10h	H08-15	Load moment of inertia 比	RW		0.01 times	0 to 12000 (units: 0.01 times)	100	Run neutral for changes to take effect
2008	13h		Velocity feedforward filtering time constant	RW	Uint16	0.01 ms	0~6400 (unit: 0.01ms)	50	Run neutral for the change to take effect
2008	14h	H08-18 H08-19 H08-20	Speed feedforward gain	RW	Uint16		0~1000 (unit: 0.1%)	0	Running changes take effect immediately
2008	15h		Torque feedforward filter time constant	RW	0.10% Uint16 Uint16	0.01 ms	0~6400 (unit: 0.01ms)	50	Run neutral to make changes take effect Run
2008	16h	H08-21	Torque feedforward gain	RW		0.10%	0-2000 (unit: 0.1%)	0	neutral to make changes take effect
2008	17h	H08-22	Speed feedback filter option	RW	Uint16	-	0: Speed feedback average filtering is disabled 1: Speed feedback twice average filtering 2: Speed feedback 4 times average filtering 3: Speed feedback 8 times average filtering 4: Speed feedback 16 times average filtering	0	Stop can immediately change effect
2008	18h	H08-23	Velocity feedback low-pass filter cutoff frequency	RW	Uint16	1Hz	100 ~ 4000	4000	Run neutral to make changes take effect Run neutral
2008	19h	H08-24	pseudo differential feedforward control coefficient	RW	Uint16	0.10%	0 ~ 1000	1000	to make changes take effect
2009/H09 Self-tuning parameters									
2009	01h	H09-00	Self-adjusting mode selection	RW	Uint16	-	0: invalid 1: Standard rigid table mode 2: Positioning mode 3: Rigid table plus compensation mode 4: positioning plus compensation mode	0	The change can take effect immediately in operation

Parameter (hexadecimal)		Effective name (decimal)	Accessible map		Data	Minimum	Set range	Settings	
	Function code		Interrogative attribute		Type	Units			
Factory Value Mode Mode Index subindex run immediately									
2009	02h	H09-01 Rigid class select	RW	-	Uint16	-	0 ~ 31	12	Can be changed | to take effect
2009	Running immediately 03h	H09-02 Adaptive filter Uint16 mode selection	RW	-		-	0: Adaptive filter is no longer updated; 1: an adaptive filter is valid (Group 3 notch) 2: Two adaptive filters are available Effect (Group 3 and Group 4 trap Undulator) 3: Only test the resonance point displayed on H0924 4: Clear adaptive traps and restore the values of Group 3 and Group 4 traps to factory status	0	Can be changed | to take effect
2009	04h	H09-03 Mode	RW	-	Uint16	-	0: Turn off online identification 1: Turn on online identification and slowly change online inertia 2: Open online identification, general change 3: Turn on online identification for quick changes	0	| running immediately Can be changed | to take effect
2009	05h	H09-04 Low frequency Resonance suppression mode selection	RW	-	Uint16	-	0: Manually set the parameters of the low frequency resonance suppression filter 1: Automatically set the parameters of the low-frequency resonance suppression filter	0	| Run neutral change | takes effect
2009	06h	H09-05 Off-line inertia identification model	RW	-		-	0: positive and negative triangular wave mode 1:JOG point motion mode	0	Downtime subject to change
2009	07h	H09-06 Inertia identification of maximum speed	RW	-	Uint16 Uint16		100 ~ 1000	500	Downtime takes effect immediately with changes
2009	08h	The inertia is identified when accelerating to the maximum speed time constant	RW	-	1rpm Uint16 Uint16	1ms	20-80050 ~	125	Downtime makes changes effective immediately
2009	09h	After the single moment of inertia identification is completed, the waiting time to complete the single moment of inertia identification requires the number of turns of the motor:	RW	-		1ms	10000	800	Downtime makes changes effective immediately
2009	OAh	H09-09	RO	-	Uint16 0-65535	1r		0	Display parameter There is no
2009	ODh	H09-12	RW	-	Uint16	1Hz	50 ~ 4000	4000	Run neutral for changes to take effect
2009	OEh	H09-13	RW	-		-		2	| The change takes effect upon neutral operation | the change takes effect upon | the
2009	OFh	H09-14 Group 1 trap frequency:	RW	-		-	0-200-9950-4000	0	
2009	10h	H09-15 Group 1 trap width class:	RW	-		1Hz		4000	change takes effect upon | the change takes effect upon | the change takes effect upon |
2009	11h	H09-16 Group 1 trap depth class: Group 2 trap frequency:	RW	-	Uint16 Uint16 Uint16	-		2	
2009	12h	H09-17 Group 2 trap width class:	RW	-	Uint16	-	0-200-99	0	Running | Running now | Changes ,
2009	13h	H09-18 Group 2 trap depth class: group 3 trap frequency	RW	-		1Hz	50 ~ 4000	4000	effective immediately | running , immediately
2009	14h	H09-19 第 3 组陷波器	RW	-	Uint16	-	0-20	N	

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Parameters (sixteen function codes Way Way Index			Set effective base) Factory value (decimal)	Accessible mapping Interrogative attribute		Data Type	Minimum Units	Set range		
	Subindex Group 3 Trap									
2009	15h	H09-20	0 Depth rating	RW	-	Uint16	-	0-99.		Running Immediately
			Variable effective Group 4 Trap							
2009	16h	H09-21	4000 frequency	RW	-	Uint16 1Hz		50 ~ 4000		Running Immediately Variable to take effect
2009	17h	H09-22 Group 4 Trap RW				Uint16	-	0-20		Running Immediately
			2 Width levels							
			Variable takes effect Group 4 Trap							
2009	18h	H09-23	0 Depth rating	RW	-	Uint16	-	0-99.		Running Immediately
			Variable effective resonant frequency identification							
2009	19h	H09-24	0 Results	RO	-	Uint16	-	0-4000.		Display parameter There is no
2009	1Fh	H09-30 Torque disturbance compensation RW				Uint16 0.10%		-1000 to 1000 (unit 0.1%)		Running immediately
			0 Gain							
			Variable effective torque disturbance observation							
2009	0.01 20h	H09-31	The filter time is constant	RW	-	Uint16		0~2500 (unit 0.01ms)ms	0.5	Running Immediately
			Number of valid can be changed							
2009	27h	H09-38	Low resonance frequency	RW	-	Uint16 | 0.1Hz		10 to 1000 (unit: 0.1Hz)	1000	Downtime changes take effect immediately
2009	28h	H09-39	Low frequency resonance frequency filtering Settings	RW	-	Uint16	-	0 to 10	2	Downtime takes effect immediately with changes
2009	29h	H09-40	Low frequency resonance denominator frequency and molecular frequency ratio	RW	-	Uint16 Uint16	0.1	0 to 30	12	Downtime for immediate change to take effect
200A/HOA Failure and protection										
200A	01h	HOA-00	Power input phase loss protection selection	RW	-		-	0: disables the fault prohibition warning 1: Enable fault and warning 2: disables faults and warnings	0	Run neutral for the change to take effect
200A	02h	HOA-01	Absolute location limit Settings	RW	-	Uint16	-	0: Absolute position limit is not enabled 1: indicates that absolute position limit is enabled 2: Enable absolute position limit after the origin is returned to zero	0	Downtime takes effect immediately with changes
	04h	HOA-03	Power-off save function Enables selection of	RW	-		-	0: The power-off save is not performed 1: Save power-off	0	Run neutral for the change to take effect
200A 200A 200A	05h	HOA-04	motor overload protection gain	RW	-	Uint16 Uint16 Uint16	%	50-300.	100	Downtime takes effect immediately
	09h	HOA-08	Overspeed fault threshold	RW	-	1rpm Uint16		0 ~ 10000	0	changes take effect when running neutral
	OAh	HOA-09	Position maximum pulse input frequency	RW	-		-		1000	Downtime can take effect immediately changes can take effect by running neutral changes can take effect by running neutral changes can take effect by running neutral
200A 200A	ODh		Speed car protection function enables	RW	-		-	0: The car is not protected 1: 开启飞车保护	1	
200A 200A	11h	HOA-12 HOA-16 HOA-19	low frequency resonance position deviation judgment threshold DI8 filter time constant DI9 filter time constant	RW	-	100~1000 Uint16 Uint16 Uint16 Uint16		1-1000	5	
	14h			RW	-		-		80	Shutdown can be changed again Power-on shutdown can be changed again
200A	15h	HOA-20		RW	-		-	0-2550-255	80	
200A	1Ah	HOA-25	The velocity feedback displays the value of the filter time constant	RW	-	Uint16	1ms	0 ~ 5000	50	Downtime for immediate changes to take effect

Parameters (sixteen function codes Way Way Index Subindex		Name	Set effective base)	Accessible mapping Interrogative attribute		Data Type	Minimum Units	Set range		
0: Open motor overload 200A										
	1Bh	HOA-26	motor overload shield RW		-	Uint16	-	1: Shield motor overload warning		Shutdown available immediately
			0 Enable							
			Change effective (Er.909) and failure (Er.620) Speed DO filter							
Downtime available immediately 200A										
	1Ch	HOA-27	10 time constant	RW	-	Uint16 1ms 0-5000				
			Change takes effect Orthogonal encoder filter							
Again 200A								Stop can be RW		
	1Dh	HOA-28	5 wave time constant		-	Uint16	25ns 0-255			
			Change the on-current plug transfer temperature protection							
				Runningtimewindow						
	21h	HOA-32		RW	-	Uint16 1ms 10~65535			200	
Changes can take effect during run 200A										
	22h	The HOA-33 protects the RW with blocked transfer temperature				YES Uint16	-	0: mask 1: Enable		
			1 Enable							
			Can be changed to take effect absolute encoder							
200A	25h	HOA-36	Multi-turn overflow fault selection	RW	-	Uint16	-	0: Unmasked 1: Shield	0	Downtime available immediately Change Effective
200B/HOB Displays parameters										
	01h	HOB-00	Actual motor speed instruction	RO	-	int16 1rpm		-	-	Display parameter There is no
	02h	HOB-01		RO	-	int16 1rpm int16		-	-	Show parameters There is no
200B	03h	HOB-02	Internal torque instruction	RO	-		%	-	-	Display parameters There is no
	04h	HOB-03	The input signal monitors DI	RO	-	Uint16	-	-	-	Display parameter There is no
	06h	HOB-05	The output signal monitors DO	RO	-	Uint16	-	-	-	Display parameter There is no
	08h	HOB-07	Absolute position counter	RO	-	int32	1 instruction unit	- 231-231	-	Show parameters There is no
	OAh	HOB-09	mechanical Angle	RO	-	Uint16	1 encoder unit	-	-	Display parameters There is no
200B 200B 200B 200B 200B 200B	OBh	HOB-10	Electrical Angle	RO	-	Uint16	1 °	-	-	Show parameters There is no
200B 200B 200B 200B 200B 200B	OCh	HOB-11	Enter position instructions corresponding to speed information	RO	-	int16 1rpm int16		-	-	Display parameter There is no
200B 200B 200B 200B 200B 200B	ODh	HOB-12	Average load rate	RO	-		%	-	-	Display parameters There is no
	OEh	HOB-13	Input position instruction count encoder	RO	-	int32	1 instruction unit 1 encoder unit 1 encoder unit	-	-	Display Parameter There is no
	10h	HOB-15	position deviation counter	RO	-	int32		-	-	Display parameter There is no
	12h	HOB-17	Feedback pulse counter	RO	-	int32		-	-	Display parameter There is no
	14h	HOB-19	总上电时间	RO	-		1s	-	-	Display parameter There is no
	19h	HOB-24	Phase current effective value	RO	-	Uint32 Uint16 Uint16	1A	-	-	Display parameter There is no
	1Bh	HOB-26	Bus voltage value	RO	-		1V	-	-	Display parameter Display parameter There is no
	1Ch	HOB-27	Module temperature	RO	-	Uint16	1 °C	-	-	Display parameter There is no

Parameters (sixteen function codes Way Way Index	Subindex	Name (decimal)		Set effective base)	Accessible mapping Interrogative attribute		Data Type	Minimum Units	Set range	Factory defaults		
200B in operation		HOB-33 Fault log		Immediate 22h	RW	-	Uint16	-	0: Current fault 1: indicates the previous fault 2: indicates the last two faults 3: Last 3 failures 4: Last 4 failures 5: indicates the last five failures 6: Last 6 failures 7: Last 7 failures 8: Last 8 failures 9: The selected number of failures in the last 9 failures	0	Changeable to take effect	
	23h	Uint16 HOB-34	RO code		RO	-		-	-	0		无
	24h	HOB-35	stampless Number selected fault hour electricity	Number the selected failure time	RO	-	Uint32	S	-	-		
Display parameter 200B	26h	HOB-37	Machine speed		RO	-	int16	rpm	-	-		There is no
	27h		Motor U-phase current at selected fault		RO	-	int16	A	-	-	Display parameter	There is no
200B 200B 200B	28h	HOB-38 HOB-39 HOB-40	Elevator V phase current at selected fault		RO	-	int16	A	-	-	Display parameter	There is no
	29h		Bus voltage at selected fault		RO	-		V	-	-	Display parameter	There is no
	2Ah	HOB-41	Enter the terminal status when the fault is selected		RO	-	Uint16 Uint16 Uint16	-	-	-	Show parameters	There is no
	2Bh		Output terminal status when the fault is selected		RO	-		-	-	-	Display parameter	There is no
	36h	HOB-42 HOB-53 HOB-55	Position deviation counter		RO	-	int32	1 instruction unit	-	-	Display parameters	There is no
200B 200B 200B	38h		Actual motor speed		RO	-	int32	1rpm	-	-	Display parameter	There is no
200B 200B 200B	3Bh	HOB-58	Mechanical absolute position (low 32 bits)		RO	-	int32	1 encoder unit	-	0	Display parameters	There is no
200B 200B 200B	3Dh	HOB-60	Mechanical absolute position (high 32 bits Bits)		RO	-	int32	1 encoder unit	-	0	Display parameters	There is no
	3Fh	HOB-62	Driver output line voltage RMS		RO	-	Uint16	-	0-65535.	0		There is no
	41h	HOB-64	real-time input position instruction counter Absolute encoder number of rotations data		RO	-	int32	1 instruction unit	-	-	Display parameter Display Parameter	There is no
	47h	HOB-70			RO	-	Uint16	1REV	-	0	Display parameter Display parameter	There is no
	48h	HOB-71	Absolute encoder position in 1 turn		RO	-	int32		-	0		There is no
200B 200B 200B	4Eh	HOB-77	Absolute encoder | Absolute position (low 32 bits) Absolute encoder |		RO	-	int32	1 encoder unit 1 Encoder unit	-	0	Display parameters	There is no
	50h	HOB-79	Absolute position (high 32 bits) Absolute position		RO	-	int32		-	0	Display parameters	There is no
200B	52h	HOB-81	Inside rotation position (low 22 |模式负载 1 圈		RO	-	Uint 32	1 Code the crying unit	-	0	Display ginseng powder	There is no

Accessible mapping system) 1 parameter (sixteen function codes Way Way Index	Subindex Absolute Position Rotation mode load 1 turn		Interrogative attribute		Data Type	Minimum Units	Set range	Factory defaults	Settings
Display parameter 200B	54h	HOB-83	RO	-	Uint 32	1 Code Instrument unit	-	0	
		No inside position (high 32 Digit) Absolute position rotation							
Display reference 200B	56h	HOB-85 mode load 1 turn	RO	-	Uint 32	1 Instruction	No units	0	
Number within position 200C/HOC communication parameters run immediately 200C									
	01h	HOC-00 drive shaft address	RW	-	Uint16	-	1-247.		Subject to change effective
200C	03h	HOC-02 Serial port baud rate setting	RW	-	Uint16	-	0:2400bps 1:4800bps 2:9600bps 3:19200bps 4:38400bps 5:57600bps	5	Changes take effect while running Now
200C	04h	HOC-03 Modbus data format	RW	-	Uint16	-	0: no parity check, two end bits 1: Parity check, 1 end bit 2: odd check, 1 end bit 3: No check, 1 end bit	0	Take effect immediately while running Modifiable
	05h	HOC-04	RW	NO		-	0	0	Display parameter There is no
	06h	Site alias HOC-05	RW	NO	Uint16 Uint16	-	0 ~ 65535	0	Downtime takes effect immediately with changes
200C 200C 200C	OAh	HOC-09 Communication VDI	RW	-	Uint16 Uint16	-	0: disable 1: Enable	0	Downtime takes effect immediately with changes
200C 200C 200C	OBh	HOC-10 Default value of VDI after power-on	RW	-		-		0	Power-on can be changed again while running
	OCh	HOC-11 Communication VDO	RW	-	0~65535 Uint16 Uint16	-	0: disable 1: Enable	0	Downtime can take effect with immediate changes
	ODh	HOC-12 Default level when the VDO function is selected to 0	RW	-		-	0 ~ 65535	0	Downtime can take effect with immediate changes
200C	OEh	HOC-13 Communication write function code values updated to EEPROM	RW	-	Uint16	-	0: does not save 1:200h series object dictionary communication is stored in EEPROM after writing 2:6000h series object dictionary is stored in EEPROM after written communication 3: 00h series and 6000h series object dictionaries are stored in EEPROM after communication	3	Changes take effect immediately while running
	21h	HOC-32 XML version number	RO	-	Uint16	1	0 ~ 65535	0	Read Only There is no
200C 200C 200C	22h	HOC-33 Communication fault code	RO	-	Uint16	1		0	Read Only There is no
	24h	HOC-35 EtherCAT synchronization interrupt loss allowed times	RW	-	0~65535 Uint16	1		100	Run neutral changes take effect
200C	25h	HOC-36 CRC check error Port0 Port	RO	-	0~65535 Uint16	W	0-65535.	0	Show parameters There is no
200C	26h	HOC-37 Port1 port has a CRC error	RO	-	Uint16	W	0 ~ 65535	0	Show parameters There is no

Parameters (sixteen function codes Method index Effective base) Out value (decimal) Subindex port 0, 1 number				Accessible mapping Interrogative attribute		Data Type	Minimum Units	Set range		Settings Way
	27h	HOC-38	Unfounded forwarding error	RO	-	Uint16	W	0 ~ 65535	0	
Number 200C	28h	HOC-39	processing unit and RO Count ports 0, 1 chain	No PDI errors	-	Uint16	W	0 ~ 65535	0	Show parameter
	29h	HOC-40	No path lost	RO	-	Uint16	W	0-65535.	0	
Number of stops available again 200C	2Ah	HOC-41	Host type Select RW		-	Uint16	-	0-3	2	Changes
	2Bh	HOC-42	Power sync error monitoring 0 Mode Settings	RW	-	Uint16	-	0 ~ 1		Changes
Effective downtime available immediately 200C	2Ch	HOC-43	Set the synchronization mode to RW		-	Uint16	-	0 ~ 2	2	Changes Effective
200C	2Dh	HOC-44	Synchronization error threshold	RW	-	Uint16	1ns	0 ~ 65535	3000	Downtime can be changed immediately Effective
200C	2Eh	HOC-45	Location cache setting	RW	-	Uint16 Uint16 Uint16	-	0 ~ 11 ~ 7	1	Downtime can be changed. immediately Effective
200C	2Fh	HOC-46	The CSP position instruction increment exceeds the threshold	RW	-	Uint16 Uint16 Uint16	-		3	Run neutral for the changes to take effect
200C	30h	HOC-47	CSP position instruction increment too many times	RO	-	Uint16 Uint16 Uint16	-	0 ~ 65535	0	Display parameters There is no
200D/HOD auxiliary function parameters										
	01h	HOD-00	Software reset	RW	-		-	0: no operation is performed 1: The software resets	0	Downtime can be changed immediately Effective
	02h	HOD-01	Fault reset	RW	-		-	0: no operation is performed 1: reset the fault	0	Downtime subject to change Effective
200D 200D 200D	03h	HOD-02	Offline inertia identification enabled	RW	-		-	0: no operation is performed 1: enabled	0	
200D 200D 200D	06h	HOD-05	Emergency shutdown	RW	-		-	0: no operation is performed 1: emergency shutdown	0	
	OAh	HOD-09	Key adjustment enabled	RW	-		-	0: disables 1: enabled	0	Effective Downtime can be changed immediately Effective
	OCh	HOD-11	JOG trial run enabled	RW	-		-	-	-	
200D	12h	HOD-17	The output is enabled in DIDO forcible mode	RW	-	Uint16	-	0: no operation is performed 1: forcibly enable DI, forcibly disable DO 2: Enable DO forcibly but disable DI forcibly 3: Both DIdos are disabled forcibly 4:EtherCAT control is enabled for mandatory DO but disabled for mandatory DI	0	Run neutral for the change to take effect
	13h	H0D-18	DI Force input set DO	RW	-	Uint16	-	0-447.	447	Changes can take effect when running neutral. Changes can take effect when running neutral
200D 200D 200D	14h	HOD-19	force output set absolute encoder reset Enabled	RW	-	Uint16	-	0 to 7	0	
	15h	HOD-20		RW	-	Uint16	-	0: No operation 1: Reset the fault 2: Reset fault and multi-turn data	0	

Parameter (hexadecimal) Index	Subindex	Function code (decimal)	Name		Mapping properties	Data Type	Smallest unit	Set range	Factory defaults	Setting method	Effective Way
Mode Mode 200F/HOF Full closed loop function parameter 200F											
	01h	HOF-00	encoder feedback mode	Downtime can be RW	-	Uint16	-	0: Internal encoder feedback 1: External encoder feedback			At once
Type 0 Changes take effect external encoder enable											
Downtime can be immediately 200F	02h	HOF-01	0 use mode .The change takes effect when the motor rotates one turn	RW	-	Uint16	-	0: Used in standard running direction 1: Use in reverse running direction			
Downtime is available again at 200F	05h	HOF-04	External encoder anti-RW	-		int32	1 Exterior encoder 0-230 Change the number of energizing feed pulses		10000		
Unit 1 External full closed loop position bias											
200F immediately in operation	09h	HOF-08	1000 difference large threshold	RW	-	int32	Encoder 0-230 Can change the effective unit full closed loop position bias				
200F immediately in operation	OAh	HOF-09	Differential clear setting	RW	-	Uint16	1Rev	0 ~ 100	0	Changeable	Effective
200F	OEh	HOF-13	Hybrid vibration suppression filtering time constant	RW	-	Uint16	0.01 ms	0 to 65535 (in 0.01ms)	0	Downtime changes take effect immediately	
	11h	HOF-16	Full closed loop position deviation counter	RO	-	Uint32	1 External encoder unit	- 230-230	0	Show parameters	There is no
200F 200F 200F	13h	HOF-18	Internal encoder feedback pulse counter	RO	-	int32	1 Internal encoder unit	-	0	Display parameters	There is no
	15h	HOF-20	External encoder feedback pulse counter	RO	-	int32	1 External encoder unit	-	0	Display parameters	There is no
2017/H17 Virtual DIDO Settings											
2017	01h	H17-00	VDI1 Terminal Selection	RW	-	Uint16	-	0 ~ 39	0	Downtime	Downtime changes take effect
2017	02h	H17-01	VDI1 Logical terminal selection	RW	-	Uint16	-	0: indicates that VDI1 writing 1 is valid 1: indicates that VDI1 is valid when the write value is changed from 0 to 1	0	Downtime may!	Downtime changes take effect
2017	03h	H17-02	VDI2 terminal function Select	RW	-	Uint16	-	0-39	0	Downtime	Downtime changes take effect
2017	04h	H17-03	VDI2 Logical terminal selection	RW	-	Uint16	-	0: indicates that VDI2 writing 1 is valid 1: indicates that VDI2 is valid when the write value is changed from 0 to 1	0	Downtime	Downtime changes take effect
2017	05h	H17-04	VDI3 terminal Selection	RW	-	Uint16	-	0-39	0	Downtime	Downtime changes take effect
2017	06h	H17-05	VDI3 terminal logical selection	RW	-	Uint16	-	0: indicates that VDI3 writing 1 is valid 1: indicates that VDI3 is valid when the write value is changed from 0 to 1	0	Downtime	Downtime changes take effect
2017	07h	H17-06	VDI4 terminal Selection	RW	-	Uint16	-	0-39	0	Downtime can be changed with downtime	生效
2017	08h	H17-07	VDI4 terminal logic Select	RW	-	Uint16	-	0: indicates that VDI4 writing 1 is valid 1: indicates that VDI4 is valid when the write value is changed from 0 to 1	0	Downtime may!	Downtime changes take effect
2017	09h	H17-08	VDI5 terminal function Select	RW	-	Uint16	-	0-39	0	Downtime available |	Downtime changes take effect

Parameter (hexadecimal) Method index	Subindex	Function code	Effective name	Accessible map interrogative attribute		Data Type	Minimum Units	Set range		Settings Way
2017	OAh	H17-09	0: indicates that VDI5 writes 1 with VDI5 terminal logic 0 Select	RW	-	Uint16	-	The effect 1: Indicates VDI5 writes the value by 0		Downtime can be stopped
2017	OBh	H17-10	The VDI6 terminal function is valid when the change takes effect to 1 0 Select	RW	-	Uint16	-	0-39		Downtime can be stopped Change Effective
2017	Och	H17-11	0: indicates that VDI6 writes 1 with VDI6 terminal logic 0 Select	RW	-	Effective Uint16		1: Indicates VDI6 writes the value by 0 Effective when changed to 1		Stop can be stopped Change
2017	ODh	H17-12VDI7 terminal function	Downtime Options	-		Uint16	-	Downtime can be RW 0-39	0	Changes Effective
2017	OEh	H17-13	0: indicates that VDI7 writes 1 with VDI7 terminal logic Select	RW	-	Uint16	-	The effect 1: Indicates that VDI7 is valid when the write value changes from 0 to 1	0	Downtime available Shut down Change Effective
2017	OFh	H17-14	VDI8 terminal function Select	RW	-	Uint16	-	0-39	0	Downtime can be changed with downtime Take effect
2017	10h	H17-16 H17-15	VDI8 Logical terminal selection	RW	-	Uint16	-	0: indicates that VDI8 writing 1 is valid 1: indicates that VDI8 is valid when the write value changes from 0 to 1	0	Downtime Downtime changes take effect
2017	11h		VDI9 terminal function selection	RW	-	Uint16	-	0-39	0	Downtime can be changed with downtime Take effect
2017	12h	H17-17	VDI9 Logical terminal selection	RW	-	Uint16	-	0: indicates that VDI9 writing 1 is valid 1: indicates that VDI9 is valid when the write value is changed from 0 to 1	0	Downtime can be changed with downtime Take effect
2017	13h	H17-18	VDI10 terminal function Select	RW	-	Uint16	-	0-39	0	Downtime can be changed with downtime Take effect
2017	14h	H17-19	VDI10 Logical terminal selection	RW	-	Uint16	-	0: indicates that VDI10 writing 1 is valid 1: indicates that VDI10 is valid when the write value is changed from 0 to 1	0	Downtime Downtime changes take effect
2017	15h	H17-20	VDI11 terminal function Select	RW	-	Uint16	-	0-39	0	Downtime can be changed with downtime Take effect
2017	16h	H17-21	VDI11 terminal Logical Select the VDI12	RW	-	Uint16	-	0: indicates that VDI11 writing 1 is valid 1: indicates that VDI11 is valid when the write value changes from 0 to 1	0	Downtime can be changed with downtime Take effect
2017	17h	H17-22	terminal function	RW	-	Uint16	-	0-39	0	Downtime can be changed with downtime Take effect
2017	18h	H17-23	VDI12 terminal logic VDI13	RW	-	Uint16	-	0: indicates that VDI12 writing 1 is valid 1: indicates that VDI12 is valid when the write value is changed from 0 to 1	0	Stop can stop changes take effect Stop can stop changes
2017	19h	H17-24	terminal function VDI13	RW	-	Uint16	-	0-39	0	Take effect
2017	1Ah	H17-25	terminal logic VDI14 terminal function is corrupted	RW	-	Uint16	-	0: 表示 VD13 写入 1 有 The effect 1: indicates that VDI13 is valid when the write value changes from 0 to 1	0	Downtime Downtime changes take effect
2017	1Bh	H17-26		RW	-	Uint16	-	0-39	0	Stop can stop rain to birth station

Parameters (16 function codes) Index	Subindex	(decimal)	Name	Accessible map interrogative attribute	Minimum	Data Type	Units	Set range	Factory defaults	Settings Effective Method Method
2017	1Ch	H17-27	|VDI14 Logical terminal selection	RW	-	Uint16	-	0: indicates that VDI14 writing 1 is valid 1: indicates that VDI14 is valid when the write value is changed from 0 to 1	○	Stop available 1 Stop change takes effect
2017	1Dh	H17-28	VDI15 terminal function Select	RW	-	Uint16	-	0-39	○	Downtime Downtime changes take effect
2017	1Eh	H17-29	|VDI15 Logical terminal selection	RW	-	Uint16	-	0: indicates that VDI15 writing 1 is valid 1: indicates that VDI15 is valid when the write value is changed from 0 to 1	0	Downtime Can 1 Downtime changes take effect
2017	1Fh	H17-30	|VDI16 Select the terminal	RW	-	Uint16	-	0-39	○	Downtime can be made with downtime changes Take effect
2017	20h	H17-31	|VDI16 Terminal Logic Selection	RW	-	Uint16	-	0: indicates that VDI16 writing 1 is valid 1: This parameter is valid when the write value of VDI16 changes from 0 to 1	○	Downtime available | Downtime changes take effect
2017	21h	H17-32	VDO virtual level	RO	-	Uint16	-	0-65535.	○	Show parameters There is no
2017	22h	H17-33	|VDO1 Select the terminal function	RW	-	Uint16	-	0: undefined 1: Servo is ready 2: Motor rotation 3: Zero speed signal 4: Consistent speed 5: Positioning complete 6: Undefined 7: Torque limit 8: Speed limit 9: Holding brake 10: Warning 11: Fault 12: Output 3-digit alarm code 13: Output 3-digit alarm code 14: Output 3-digit alarm code 15: Undefined 16: undefined 17: undefined 18: Torque arrived 19: Speed arrived 20: Initial Angle identification completed	0	Downtime available | Downtime changes take effect
2017	23h	H17-34	VDO1 terminal logic level selection	RW	-	Uint16	-	0-1	0	| Stop Stop can be changed Effective

Parameters (16 function codes) Index	Subindex	(decimal)	Name	Minimum Accessible map interrogative attribute		Data Type	Units	Set range	Factory defaults	Set effective mode Mode
2017	24h	H17-35	VDO2 terminal function Select	RW	-	Uint16	-	0: undefined 1: Servo is ready 2: Motor rotation 3: Zero speed signal 4: Consistent speed 5: Positioning complete 6: Undefined 7: Torque limit 8: Speed limit 9: Hold the lock 10: Warning 11: Glitch 12: Output 3-digit alarm code 13: Output 3-digit alarm code 14: Output 3-digit alarm code 15: Undefined 16: undefined 17: undefined 18: Torque arrived 19: Speed arrived 20: Initial Angle identification completed	0	Downtime Downtime changes take effect
2017	25h	H17-36	VDO2 terminal logic level selection	RW	-	Uint16	-	0 ~ 1	0	Downtime Downtime changes take effect
2017	26h	H17-37	VDO3 terminal function Select	RW	-	Uint16	-	0: Undefined 1: Servo is ready 2: Motor rotation 3: Zero speed signal 4: Consistent speed 5: Positioning complete 6: Undefined 7: Torque limit 8: Speed limit 9: Holding brake 10: Warning 11: Glitch 12: Output 3-digit alarm code 13: Output 3-digit alarm code 14: Output 3-digit alarm code 15: Undefined 16: undefined 17: undefined 18: Torque arrived 19: Speed arrived 20: Initial Angle identification completed	0	Downtime Downtime changes take effect
2017	27h	H17-38	VDO3 terminal logic level selection	RW	-	Uint16	-	0-1	0	Downtime for changes to take effect Downtime

Parameters (sixteen functional codes		(decimal)	Name	Minimum Accessible map interrogative attribute		Data Type	Units	Set range	Factory defaults	Set effective mode Mode
Index	Subindex									
2017	28h	H17-39	VDO4 terminal function Select	RW	-	Uint16	-	0: undefined 1: Servo is ready 2: Motor rotation 3: Zero speed signal 4: Consistent speed 5: Positioning complete 6: Undefined 7: Torque limit 8: Speed limit 9: Hold the lock 10: Warning 11: Fault 12: Output 3-digit alarm code 13: Output 3-digit alarm code 14: Output 3-digit alarm code 15: Undefined 16: undefined 17: undefined 18: Torque arrived 19: Speed arrived 20: Initial Angle identification completed	0	Downtime Downtime changes take effect
2017	29h	H17-40	VDO4 terminal logic level selection	RW	-	Uint16	-	0 ~ 1	0	Downtime Downtime changes take effect
2017	2Ah	H17-41	VDO5 terminal function Select	RW	-	Uint16	-	0: undefined 1: Servo is ready 2: Motor rotation 3: Zero speed signal 4: Consistent speed 5: Positioning complete 6: Undefined 7: Torque limit 8: Speed limit 9: Holding brake 10: Warning 11: Fault 12: Output 3-digit alarm code 13: Output 3-digit alarm code 14: Output 3-digit alarm code 15: Undefined 16: undefined 17: undefined 18: Torque arrived 19: Speed arrived 20: Initial Angle identification completed	0	Downtime Downtime changes take effect
2017	2Bh	H17-42	VDO5 terminal logic level selection	RW	-	Uint16	-	0 ~ 1	0	Downtime Downtime changes take effect

Parameters (16 function codes) Index	Subindex	(decimal)	Name	Minimum Accessible map interrogative attribute		Data Type	Units	Set range	Factory defaults	Set effective mode Mode
2017	2Ch	H17-43	VDO6 terminal function Select	RW	-	Uint16	-	0: undefined 1: Servo is ready 2: Motor rotation 3: Zero speed signal 4: Consistent speed 5: Positioning complete 6: Undefined 7: Torque limit 8: Speed limit 9: Hold the lock 10: Warning 11: Glitch 12: Output 3-digit alarm code 13: Output 3-digit alarm code 14: Output 3-digit alarm code 15: Undefined 16: undefined 17: undefined 18: Torque arrived 19: Speed arrived 20: Initial Angle identification completed	0	Downtime Downtime changes take effect
2017	2Dh	H17-44	VDO6 terminal logic level selection	RW	-	Uint16	-	0 ~ 1	0	Downtime Downtime changes take effect
2017	2Eh	H17-45	VDO7 terminal function Select	RW	-	Uint16	-	0: Undefined 1: Servo is ready 2: Motor rotation 3: Zero speed signal 4: Consistent speed 5: Positioning complete 6: Undefined 7: Torque limit 8: Speed limit 9: Holding brake 10: Warning 11: Glitch 12: Output 3-digit alarm code 13: Output 3-digit alarm code 14: Output 3-digit alarm code 15: Undefined 16: undefined 17: undefined 18: Torque arrived 19: Speed arrived 20: Initial Angle identification completed	0	Downtime Downtime changes take effect
2017	2Fh	H17-46	VDO7 terminal logic level selection	RW	-	Uint16	-	0-1	0	Downtime for changes to take effect Downtime

Parameters (16 function codes) Index	Subindex	(decimal)	Name	Minimum Accessible map interrogative attribute		Data Type	Units	Set range	Factory defaults	Set effective mode Mode
2017	30h	H17-47	VDO8 terminal function Select	RW	-	Uint16	-	0: undefined 1: Servo is ready 2: Motor rotation 3: Zero speed signal 4: Consistent speed 5: Positioning complete 6: Undefined 7: Torque limit 8: Speed limit 9: Hold the lock 10: Warning 11: Glitch 12: Output 3-digit alarm code 13: Output 3-digit alarm code 14: Output 3-digit alarm code 15: Undefined 16: undefined 17: undefined 18: Torque arrived 19: Speed arrived 20: Initial Angle identification completed	0	Downtime Downtime changes take effect
2017	31h	H17-48	VDO8 terminal logic level selection	RW	-	Uint16	-	0 ~ 1	0	Downtime Downtime changes take effect
2017	32h	H17-49	VDO9 terminal function Select	RW	-	Uint16	-	0: Undefined 1: Servo is ready 2: Motor rotation 3: Zero speed signal 4: Consistent speed 5: Positioning complete 6: Undefined 7: Torque limit 8: Speed limit 9: Holding brake 10: Warning 11: Glitch 12: Output 3-digit alarm code 13: Output 3-digit alarm code 14: Output 3-digit alarm code 15: Undefined 16: undefined 17: undefined 18: Torque arrived 19: Speed arrived 20: Initial Angle identification completed	0	Downtime Downtime changes take effect
2017	33h	H17-50	VDO9 terminal logic level selection	RW	-	Uint16	-	0-1	0	Downtime for changes to take effect Downtime

Parameters (sixteen functional codes		(decimal)	Name	Minimum Accessible map interrogative attribute		Data Type	Units	Set range	Factory defaults	Set effective mode Mode
Index	Subindex									
2017	34h	H17-51	VDO10 terminal function Select	RW	-	Uint16	-	0: undefined 1: Servo is ready 2: Motor rotation 3: Zero speed signal 4: Consistent speed 5: Positioning complete 6: Undefined 7: Torque limit 8: Speed limit 9: Hold the lock 10: Warning 11: Fault 12: Output 3-digit alarm code 13: Output 3-digit alarm code 14: Output 3-digit alarm code 15: Undefined 16: undefined 17: undefined 18: Torque arrived 19: Speed arrived 20: Initial Angle identification completed	0	Downtime Downtime changes take effect
2017	35h	H17-52	VDO10 terminal logic level selection	RW	-	Uint16	-	0 ~ 1	0	Downtime Downtime changes take effect
2017	36h	H17-53	VDO11 terminal function Select	RW	-	Uint16	-	0: undefined 1: Servo is ready 2: Motor rotation 3: Zero speed signal 4: Consistent speed 5: Positioning complete 6: Undefined 7: Torque limit 8: Speed limit 9: Holding brake 10: Warning 11: Fault 12: Output 3-digit alarm code 13: Output 3-digit alarm code 14: Output 3-digit alarm code 15: Undefined 16: undefined 17: undefined 18: Torque arrived 19: Speed arrived 20: Initial Angle identification completed	0	Downtime Downtime changes take effect
2017	37h	H17-54	VDO11 terminal logic level selection	RW	-	Uint16	-	0 ~ 1	0	Downtime Downtime changes take effect

Parameters (sixteen functional codes		(decimal)	Name	Minimum Accessible map interrogative attribute		Data Type	Units	Set range	Factory defaults	Set effective mode Mode
Index	Subindex									
2017	38h	H17-55	VDO12 terminal function Select	RW	-	Uint16	-	0: undefined 1: Servo is ready 2: Motor rotation 3: Zero speed signal 4: Consistent speed 5: Positioning complete 6: Undefined 7: Torque limit 8: Speed limit 9: Hold the brake 10: Warning 11: Fault 12: Output 3-digit alarm code 13: Output 3-digit alarm code 14: Output 3-digit alarm code 15: Undefined 16: undefined 17: undefined 18: Torque arrived 19: Speed arrived 20: Initial Angle identification completed	0	Downtime Downtime changes take effect
2017	39h	H17-56	VDO12 terminal logic level selection	RW	-	Uint16	-	0 ~ 1	0	Downtime Downtime changes take effect
2017	3Ah	H17-57	VDO13 terminal function Select	RW	-	Uint16	-	0: undefined 1: Servo is ready 2: Motor rotation 3: Zero speed signal 4: Consistent speed 5: Positioning complete 6: Undefined 7: Torque limit 8: Speed limit 9: Holding brake 10: Warning 11: Fault 12: Output 3-digit alarm code 13: Output 3-digit alarm code 14: Output 3-digit alarm code 15: Undefined 16: undefined 17: undefined 18: Torque arrived 19: Speed arrived 20: Initial Angle identification completed	0	Downtime Downtime changes take effect
2017	3Bh	H17-58	VDO13 terminal logic level selection	RW	-	Uint16	-	0 ~ 1	0	Downtime Downtime changes take effect

Parameters (sixteen functional codes		(decimal)	Name	Minimum Accessible maps interrogative attribute		Data Type	Units	Set range	Factory defaults	Set effective mode Mode
Index	Subindex									
2017	3Ch	H17-59	VDO14 terminal function Select	RW	-	Uint16	-	0: undefined 1: Servo is ready 2: Motor rotation 3: Zero speed signal 4: Consistent speed 5: Positioning complete 6: Undefined 7: Torque limit 8: Speed limit 9: Hold the brake 10: Warning 11: Fault 12: Output 3-digit alarm code 13: Output 3-digit alarm code 14: Output 3-digit alarm code 15: Undefined 16: undefined 17: undefined 18: Torque arrived 19: Speed arrived 20: Initial Angle identification completed	0	Downtime Downtime changes take effect
2017	3Dh	H17-60	VDO14 terminal logic level selection	RW	-	Uint16	-	0 ~ 1	0	Downtime Downtime changes take effect
2017	3Eh	H17-61	VDO15 terminal function Select	RW	-	Uint16	-	0: undefined 1: Servo is ready 2: Motor rotation 3: Zero speed signal 4: Consistent speed 5: Positioning complete 6: Undefined 7: Torque limit 8: Speed limit 9: Holding brake 10: Warning 11: Fault 12: Output 3-digit alarm code 13: Output 3-digit alarm code 14: Output 3-digit alarm code 15: Undefined 16: undefined 17: undefined 18: Torque arrived 19: Speed arrived 20: Initial Angle identification completed	0	Downtime Downtime changes take effect
2017	3Fh	H17-62	VDO15 terminal logic level selection	RW	-	Uint16	-	0 ~ 1	0	Downtime Downtime changes take effect

Parameters (16 function codes) Index	Subindex	(decimal)	Name	Accessible map Attributes		Data Type	Units	Set range	Factory defaults	Effective Method Method
2017	40h	H17-63	VDO16 terminal function Select	RW	-	Uint16	-	0: undefined 1: Servo is ready 2: Motor rotation 3: Zero speed signal 4: Consistent speed 5: Positioning complete 6: Undefined 7: Torque limit 8: Speed limit 9: Holding brake 10: Warning 11: Glitch 12: Output 3-digit alarm code 13: Output 3-digit alarm code 14: Output 3-digit alarm code 15: Undefined 16: undefined 17: undefined 18: Torque arrived 19: Velocity arrived 20: Initial Angle identification complete	0	Downtime Available 1 Downtime changes take effect
2017	41h	H17-64	VDO16 terminal logic level selection	RW	-	Uint16	-	0 ~ 1	0	Downtime Downtime changes take effect
The 2030/H30 communication reads the servo status variable										
2030	01h	H30-00		RO	-		-	-	0	Display parameter infinite
2030	02h	H30-01	Communication Read the status of the DO	RO	-	Uint16 Uint16 Uint16	-	0-65535.	0	Display parameters There is no
2030	03h	H30-02	function. 1 Communication read the status	RO	-		-	0 ~ 65535	0	Display parameters There is no
			of the DO function. 2	2031/H31 communication given relevant variable						
2031	01h	H31-00	Communication Set the VDI virtual level	RW	-	Uint16	-	0 ~ 65535	0	Run neutral changes take effect running changes take effect immediately
	05h	H31-04		RW	-	Uint16	-	0 to 7	0	
2031 203F			203F/H3F Manufacturer trouble code							
	00h		Manufacturer's fault code	RO	TP DO	Uint32	-	0~ (231-1)	0	Display parameter 无

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Index (hex)	Subindex (hex)	name	Access	PD map data type		Units	Data range	Factory Settings	Change the way	Effective Method
603Fh	00	Error code	RO	TPDO	Uint16	-	0 ~ 65535	0	Display parameters	There is no
6040h	00	Control word	RW	RPDO	Uint16	-	0-65535.	0	Run changeable none	Downtime in effect
6041h	00	Status word	RO	TPDO	Uint16	-	0~xFFFF	0	Display parameters	
605Ah	00	Quick stop mode selection	RW	NO	INT16		0 to 7	2	Changable on the run	Downtime takes effect
605Dh	00	Pause stop mode selection	RW	NO	INT16		1 ~ 3	1		Shutdown effective

index Units (hex)	Subindex (hex)	Name	Access	PD map	data type					
In operation can be modified 6061h	00	Servo mode select	RW	RPDO	INT8	-	0 to 10	0		
None 6062h	00	Run mode shows	RO	TPDO	INT8	-	0 ~ 10	0	Display parameters	
None 1 encoder single 6063h	00	Location instruction	RO	TPDO	Uint321 instruction unit		-	-	Display parameters	
None 6064h	00	Position feedback	RO	TPDO	Uint32	position.	-	-	Display parameters	
	00	Position feedback	RO	TPDO	Uint321 instruction unit		-	-	Display parameters	
3145728 6065h		No 20-bit motor is: position deviation is too large						1048576 in operation can be paused to generate the traffic threshold		
25165824 6067h	00		RW	RPDO	Uint321 instruction unit		The 23-bit motor is:		change	
Running can be more 6068h	00	Position reaches threshold RW Immediately produce the cross position to reach the window		RPDO	Uint321 encoder single	0 to 65535	Run can change bit	734		
Change 1 instruction unit 606Ch	00	Immediate delivery time	RW	RPDO	Uint16	1ms	0 ~ 65535	x16		
None /s can be more 606Dh in operation	00	Actual speed	RO	TPDO	INT32		-	-	Display parameter	
Stop production speed arrives at window 606Eh	00	Speed arrives at window		RPDO	Uint16	Irpm	0 ~ 65535	10		
Change 6071h	00		RW	RPDO	Uint16	1ms	0-65535.	0		
	00	Target torque	RW	RPDO	Uint16	0.10%	- 4000-4000	0	Running may be more	Shut down raw sex
6072h	00	Maximum torque instruction	RW	RPDO	Uint16	0.10%	0 ~ 4000	3500	Variable on the run	Shutdown generation
6074h		Torque instruction	RO	TPDO	INT16	0.10%		0	Display parameters	There is no
00 6077h	00	Actual torque	RO	TPDO	INT16	0.10%	- the 5000-5000-5000-5000	0	Display parameters	There is no
607Ah	00	Target location	RW	RPDO	INT32	1 command unit 1 command unit	- 231 - (231-1) - 231 - (231-1)	0	Changeable on the run	Shutdown generation
607Ch	00	Origin offset	RW	RPDO	INT32			0		Shut down
607Dh	Software absolute location restrictions									
	00	Number of subindexes	RO	NO	Uint8	-	-	2	Display parameters	There is no
	01	Minimum position limit	RW	RPDO	INT32	1 User location unit	- 231 - (231-1) - 231 - (231-1)	- 231.	On the run can more	Shutdown generation
	02	Maximum position limit	RW	RPDO	INT32	1 User location unit		Change in run can be more 231-1		Stop-generation unit
607Eh	00	Command polarity	RW	RPDO	Uint8	-	00-FF	0		shutdown
607Fh	00	Maximum speed	RW	RPDO	Uint32	1 指令单位 /s1 User speed unit 1 command unit /s21 command unit /s21 user acceleration unit	0 - (222-1)	104857600	Change in the running can be changed in the running can be changed in the running can be changed in the running can be changed in the running	Shutdown for delivery
	00	Profile running speed Profile	RW	RPDO	Uint32		0 - (232-1)	0		Shut down raw sex
6081h 6083h	00	acceleration	RW	RPDO	Uint32		0 - (232-1)	100		Downtime for raw sex
6084h 6085h		Contour reduction	RW	RPDO	Uint32		0 - (232-1)	100		Downtime for raw sex
	00	00 Quick stop and speed reduction	RW	RPDO	Uint32		0 - (232-1)	100		Downtime for raw sex
6086h	00	Run curve	RW	RPDO	Int16	-	- 215 - (215-1)	0		shutdown
6087h	00	Select torque ramp	RW	RPDO	Uint32	0.1%/s	0 - (222-1)	222-1		Shutdown raw sex

index	Subindex	Name	Access	PD Map	data type	Unit	Data Range		
Factory Setting	Change Method	Effective Method (hex)							
	(hex) Gear ratio								
None 6091h	00	Number of subindexes	RO	NO	Uint8	-	-	2	Display parameter
	01	Motor resolution	RW	RPDO	Uint32	-	1 - (232-1)	1	In operation can be more Effective immediately change in operation can be changed
	02	Load shaft resolution	RW	RPDO	Uint32	-	1 - (232-1)	1	Effective immediately Change running can change
6098h		Origin reversion method	RW	RPDO	Int8	-	1-35	1	Shutdown in effect change
	Return-to-zero speed								
6099h	00		RO	NO	Uint8	-	2	2	Display parameter
	01	0 Return to zero speed Slow down high-speed search without index number child	RW	RPDO	Uint32	1 Instruction unit /s1	0 ~ (232-1)		On the run can be more Shutdown effect
	02	100 points Search Origin Low speed	RW	RPDO	Uint32	instruction unit /s1	10 - (232-1)	100	Change running can more Shutdown in effect
609Ah	00	Return to zero acceleration	RW	RPDO	Uint32	instruction unit /s2	0 - (232-1)	100	Change running can be more Shutdown in effect
60BOh	00	Position bias Speed	RW	RPDO	Int32	1 instruction unit	- 231 - (231-1)		Change on the run can change on the run can change on the run Shutdown in effect
60B1h	00	bias	RW	RPDO	Int32	1 Command unit /s	- 231 - (231-1)	0	Downtime in effect
60B2h	00	Torque bias	RW	RPDO	Int16	0.10%	- 4000-4000	0	Downtime in effect
60B8h	00	Probe Mode	RW	RPDO	Uint16	-	0-65535.	0	Change on the run changeable Downtime in effect
60B9h	00	Probe State	RO	TPDO	Uint16	-	0 ~ 65535	0	none
60BAh	00	Probe 1 rising edge Position Value	RO	TPDO	Int32	1 instruction unit	- 231 - (23-1)	0	Show parameters Show parameters There is no
60BBh	00	Probe 1 Drop edge Position Value	RO	TPDO	Int32	1 instruction unit	- 232 - (231-1)	0	Show parameters There is no
60BCh	00	Probe 2 Rising edge Position Value	RO	TPDO	Int32	1 instruction unit	- 231 - (231-1)	0	Show parameters None
60BDh	00	Probe 2 Drop edge Positional values	RO	TPDO	Int32	1 instruction unit	- 231 - (231-1)	0	Show Parameters None
60EOh	00	Forward torque limitation	RW	RPDO	Uint16	0.10%	3500		Can be more 0~4000 in operation Downtime in effect
60E1h	00	Reverse torque limit	RW	RPDO	Uint16	0.10%	3500		Change in operation can be more 0~4000 Shutdown in effect change

index	Subindex	Name	Access	PD Map	data type	Unit				
Data Range	Factory Setting	Change Method	Effective Method (hex)							
	(hex)	Supported Return to Zero Mode Supported return to zero								
60E3h	00	Style subindex a The number	RO	NO	Uint8	-	-	31	Display parameters	There is no
	01	Supported back zero square Type 1	RO	NO	Uint16	-	-	0301h	Display parameter	There is no
	02	Supported way back to zero 2	RO	NO	Uint16	-	-	0302h	Display parameter	There is no
	03	Supported way back to zero 3	RO	NO		-	-	0303h	Display parameter	There is no
	04	Supported way back to zero 4	RO	NO		-	-	0304h	Display parameter	There is no
	05	Supported way back to zero 5	RO	NO		-	-	0305h	Display Parameter	There is no
	06	Supported return to zero mode 6	RO	NO	Uint16 Uint16	-	-	0306h	Display parameter	There is no
	07	Supported way back to zero 7	RO	NO	Uint16 Uint16	-	-	0307h	Display parameter	There is no
	08	Supported way back to zero 8	RO	NO	Uint16 Uint16 Uint16	-	-	0308h	Display Parameters	There is no
	09	Supported return to zero mode 9	RO	NO	Uint16 Uint16	-	-	0309h	Display parameters	There is no
	OA	Supported return to zero mode 10	RO	NO	Uint16 Uint16	-	-	030Ah	Display parameter	There is no
		Supported return to zero square OB	RO	NO		-	-	030Bh	Display Parameter	There is no
	OC	Type 11 Zero Return mode 12OD Supported	RO	NO		-	-	030ch	Display parameter	There is no
		Zero return mode 13 Zero return mode 14OF is supported	RO	NO		-	-	030Dh	Display parameter	There is no
	OE	Supported zero return modes 15	RO	NO		-	-	030Eh	Display parameter	There is no
		Supported zero return squares	RO	NO	Uint16 Uint16	-	-	030Fh	Display parameter	There is no
	10	Formula 16	RO	NO	Uint16 Uint16	-	-	0310h	Display parameter	There is no
	11	Supported zero return mode 17	RO	NO		-	-	0311h	Display parameter	There is no
	12	Supported zero return mode 18	RO	NO		-	-	0312h	Display parameter	There is no
	13	Supported zero return mode 19	RO	NO	Uint16 Uint16	-	-	0313h	Display parameter	There is no
	14	Supported zero return mode 20	RO	NO	Uint16 Uint16	-	-	0314h	Display parameter	There is no
	15	Supported zero return mode 21	RO	NO		-	-	0315h	Display parameter	There is no

index (hex)	Subindex (hex)	Name	interview	PD Mapping	Data type	units	Data range	Factory Settings	Change the way	Effective Method
60E3h	16	Supported zero return mode 22 Supported zero return modes 23	RO	NO	Uint16	-	-	0316h	Display parameter	There is no
	17		RO	NO	Uint16	-	-	0317h	Display parameter	There is no
	18	Supported return to zero square Type 24 supports the back zero square	RO	NO	Uint16	-	-	0318h	Display parameter	There is no
	19	Type 25 supported return to zero Way 26	RO	NO	Uint16	-	-	0319h	Display parameter	None
	1A		RO	NO	Uint16	-	-	031Ah	Display parameter	None
	1B	Zero return mode 27 Supported	RO	NO	Uint16	-	-	031Bh	Display parameter	There is no
	1C	Supported return to zero mode 28 Supports return to zero square 1D	RO	NO	Uint16	-	-	031Ch	Display parameter	There is no
	1D	Type 29 Zero return mode 30 Zero return square 1F supported	RO	NO	Uint16	-	-	031Dh	Display Parameter	There is no
	1E		RO	NO	Uint16	-	-	031Eh	Display parameter	None
	1F	Formula 31 Actual position calculation Way	RO	NO	Uint16	-	-	031Fh can be changed while running	Display parameter	None
60E6h	00		RW	NO	Uint8	-	0-1	0		Downtime in effect
60F4h	00	Position deviation	RO	RPDO	Uint32	1 Instruction unit 1 encoder unit	-	-	Display parameters	None
60FCh	00	Location instruction	RO	TPDO	Uint32		-	-	Display parameter	None
60FDh	00	DI state	RO	RPDO	Uint32	-	0-FFFFFFFF	0	Display parameters	There is no
60FEh	Digital output									
	00	DO status	RO	NO	Uint8	-	-	1	Display parameters	
	01	Physical output	RW	RPDONO1 Command unit /s	Uint32	-	0-FFFFFFFF	0	None Changeable on the run	Shutdown effective
	02	Physical output enabled	RW		Uint32	-	0~FFFFFFFF	0	Changeable on the run	Shutdown effective
60FFh	00	Target speed	RW	RPDO	Int32		- 461.	0		Shutdown effect
6502h	00	Support Drive mode	RO	NO	Uint32	-	-	3A1h	Display parameter	There is no

DIDO

encoding	Name	Feature name	Description	Remarks
Enter the signal function description				
FunIN.2	ALM-RST	Fault and warning reset (along active function)	Invalid - Disable; Valid - Enable.	This DI function is valid for the edge. According to the alarm type, the servo can continue to work after some alarms are reset. When the DI is assigned to a low speed DI, if the DI logic is set to be valid, it will be forced to be valid along the change. The effective level change must be kept at least 3ms, otherwise the fault reset function will be invalid. Do not assign the fault reset function to fast DI, otherwise the function will be invalid. NO.1, NO.2 Resettable Fault reset needs to turn OFF the servo enable signal (S-ON is set to OFF) before using this function
FunIN.3	GAIN-SEL	Gain switching	2008-09h=0: Invalid - speed control loop is PI control; Valid - the speed control ring is a P control. When 2008-09h=1, perform as set for 2008-0Ah.	Logical selection of the corresponding terminal, it is recommended to set to: Level valid.
FunIN.12	ZCLAMP	Zero fixed enable	Effective - Enables the zero fixing function; Invalid - Disables the null fixing function.	Logical selection of the corresponding terminal, it is recommended to set: level valid.
FunIN.13	INHIBIT	Position instruction disable	Valid - Disable instruction pulse input; Invalid - Allow instruction pulse input.	Originally pulse Disable function. It is now upgraded to position command disable, including internal and external position commands. The logical selection of the corresponding terminal must be set to: Level valid.
FunIN.14	P-OT	Forward overrange switch	Active - Forward drive is prohibited; Invalid - Forward drive allowed.	When the mechanical movement exceeds the removable range, enter the overdrive prevent function. Logical selection of the corresponding terminal, it is recommended to set to: Level valid.
FunIN.15	N-OT	Reverse overrange switch	Valid - reverse drive is prohibited; Invalid - reverse drive allowed.	
FunIN.16	P-CL	Positive external torque limitation	According to the selection of 2007-08h, the torque limit source is switched. When 2007-08h=1: Effective - Positive external torque limit in effect; Invalid - Positive turn internal torque limit is valid. 2007-08h=3 and the AI limit value is greater than the positive external limit value: valid - positive external torque limit is valid; Invalid - the AI torque limit is valid. 2007-08h=4 when: Effective -AI torque limit in effect; Invalid - positive internal torque limit is valid.	The logical selection of the corresponding terminal is recommended to set to: Level valid.

encoding	Name	Feature name	Description	Remarks
FunIN.17	N-CL	Negative external torque limit	Switch the torque limiting source as selected for 2007-08h. When 2007-08h=1: Effective - Reverse external torque limit in effect; Invalid - inverting the internal torque limit is valid. 2007-08h=3 and AI limit value less than When reversing the external limit value: Active - Reverse the external torque limit is in effect. Invalid - The AI torque limit is valid. 2007-08h=4 when: Effective -AI torque limit in effect; Invalid - reverse the internal torque limit is valid.	Logical selection of the corresponding terminal, it is recommended to set to: level valid.
FunIN.18	JOGCMD+	Forward dotting	Effective - Input as given; Invalid - Run the command to stop input.	Logical selection of the corresponding terminal, it is recommended to set: level valid.
FunIN.19	JOGCMD	Reverse dotting	Effective - reverse input as given instruction; Invalid - Run instruction to stop input.	Logical selection of the corresponding terminal, it is recommended to set: level valid.
FunIN.25	TOQDirSel	Torque instruction direction setting	Invalid - positive direction; Valid - reverse direction.	Logical selection of the corresponding terminal, it is recommended to set to: Level valid.
FunIN.26	SPDDirSel	Speed instruction direction setting	Invalid - positive direction; Valid - reverse direction.	Logical selection of the corresponding terminal, it is recommended to set to: Level valid.
FunIN.27	POSDirSel	Position instruction direction setting	Invalid - positive direction; Valid - reverse direction.	Logical selection of the corresponding terminal, it is recommended to set to: Level valid.
FunIN.31	HomeSwitch	Origin switch	Invalid - does not trigger; Valid - triggered.	The logical selection of the corresponding terminal must be set to: Level Valid. Recommended allocation in fast DI terminals. If set to 2 (rising edge valid), drive inside Will force change to 1 (active high); If set to 3 (falling edge is valid), the drive will be forced internally Is 0 (low level valid); If set to 4 (rising edge, If it is set to 4, the drive will be forced to 0 (low level is valid)
FunIN.34	EmergencyStop	Emergency shutdown	Effective - Position lock after zero speed stop; Invalid - Has no effect on current operating status.	Logical selection of the corresponding terminal, it is recommended to set to: Level valid.

encoding	Name	Feature name	Description	Remarks
FunIN.35	ClrPosErr	Clear position deviation (along active function)	Active - position deviation cleared to zero; Invalid - position deviation is not cleared.	Logical selection of the corresponding terminal, recommended setting: edge Valid. If set to 1 (high valid), drive The inside of the device will be forced to 2 (rising edge is valid); Such as If set to 0 (low level valid), the drive will Force change to 3 (falling edge valid). This DI function is recommended to be configured on DI8 or DI9 terminals.
FunIN.36	V_LmtSel	Internal speed limiting source	Valid -(2007-15h) as internal plus/minus speed limit value (2007-12h=2) Invalid -(2007-14h) as internal plus/minus speed limit value (2007-12h=2)	Logical selection of the corresponding terminal, recommended to set to: level valid.
FunIN.38	TouchProbeII	Probe 1	Invalid - probe not triggered; Valid - Probe triggers.	Probe logic is only related to the probe function (60B8h) and has nothing to do with terminal logic selection.
FunIN.39	TouchProbel2	Probe 2	Invalid - probe not triggered; Valid - Probe triggers.	Probe logic is only related to the probe function (60B8h) and has nothing to do with terminal logic selection.
Output signal function description				
FunOUT.1	S-RDY	Servo ready	Servo ready to receive S-ON valid signal: Invalid - Servo not ready. Active - Servo ready;	Servo not ready: the servo has a type I or type II fault, or DI emergency shutdown is valid.
FunOUT.2	TGON	Motor rotary output	When the speed of the servo motor is higher than the speed threshold value 2006-11h: Effective - the motor rotation signal is effective; Invalid - the motor rotation signal is invalid.	-
FunOUT.3	ZERO	Zero speed	The output signal is effective when the servo motor stops rotating - the motor speed is zero; Invalid - motor speed is not zero.	-
FunOUT.4	V-CMP	Uniform speed	When the speed is controlled, the absolute value of the difference between the speed of the servo motor and the speed instruction is less than 606Dh when the speed reaches the threshold and the time meets 606Eh, effective.	-
FunOUT.5	COIN	Position complete	When the position control, the position deviation pulse reaches the positioning completion threshold 6067h, and the time reaches 6068h, it is effective. Confirmation signal of torque limit: effective - motor torque limited; Invalid - motor torque is not limited. Confirmation signal for speed limitation in torque control: Effective - motor speed limited; Invalid - motor speed is not limited.	-
FunOUT.7	C-LT	Torque limitation		-
FunOUT.8	V-LT	Speed limit		-

encoding	Name	Feature name	Description	Remarks
FunOUT.9	BK	Lock output	Lock signal output: effective - close, release lock; Invalid - start lock.	-
FunOUT.10	WARN	Warning output	Warning output signal is valid. (Conduction)	-
FunOUT.11	ALM	Fault output	Status valid when a fault is detected.	-
FunOUT.12	ALMO1	Output 3-digit alarm code	Output the 3-digit alarm code.	-
FunOUT.13	ALMO2	Output 3-digit alarm code	Output the 3-digit alarm code.	-
FunOUT.14	ALMO3	Output 3-digit alarm code	Output the 3-digit alarm code.	-
FunOUT.18	ToqReach	Torque reaches output	Effective - The absolute torque reaches the set value; Invalid - the absolute torque value is less than reaching the set value.	-
FunOUT.19	V-Arr	Speed output arrival	Effective - Speed feedback reaches set value; Invalid - Speed feedback does not reach the set value.	-
FunOUT.20	AngIntRdy	Initial Angle identification complete	Valid - Angle identification complete; Invalid - Angle identification not completed.	-

603F Fault code panel displays fault fault name

0x7500, "Er.102", programmable logic configuration fault

0x5530. "Er.108" : parameter storage is faulty

0x7122, "Er.120", product matching failure

06320, "Er.121", servo command ON invalid fault

6320, "Er.122", Absolute position mode product matching failure

06320, Er.130", function reassignment

06320, "Er.131", function allocation exceeded

07305 "Er.136", the data check error in the motor ROM or the parameter is not stored

0x2311, "Er.201", hardware overcurrent

0x2312, Er.207, the DQ axis current overflows

0x0208, Er.208", the FPGA system sampling operation timed out

02330, Er.210", output short circuit to ground

Oxff00, "Er.220", UVW phase sequence error

Oxff00, "Er.234", flying car

03210, "Er.400", main circuit overvoltage

03220, "Er.410", main circuit undervoltage

03130 "Er.420", primary circuit out of phase

0x3120,

08400, "Er.430", control undervoltage

OxFF00, "Er.602", Angle identification failure

"Er.500", motor overspeed "Er.610", drive overload "Er.620", motor overload "Er.630", motor blocking

03230 "Er.650", radiator overheat "Er.731",

03230, encoder battery failure "Er.733",

0x7121, encoder multi-turn count error

04310,

0x7383, Er.735", encoder multi-turn count overflow

0x7332,

0x7333,

0x7334, 0x7335.

0x7336, "Er.741", encoder interference

0x7337, "Er.770", external encoder scale fault "Er.A33", encoder data anomaly "Er.A35", Z signal loss

0x7338, "Er.B00", position deviation is too large "Er.B01", position

0x8611, "Er.A34", encoder return to zero error "Er.B02", full closed loop position deviation is too large

0x8612, instruction is too large "Er.B04",

0x8613, full closed loop use error "Er.D09",

0x6324, "Er.B03", electronic gear ratio setting exceeds the limit

6325, software position upper and lower limit setting error "Er.D10",

0x6326, origin bias setting error "Er.E08",

0x6327, synchronization loss "Er.E11", did not burn XML configuration file

0x7583, "Er.E12", Network initialization failure "Er.E13", synchronization

0x7581, cycle setting error "Er.E15",

OxFF12, synchronization cycle error is too large "Er.110", divider pulse

0x7582, output setting fault "Er.601",

0x7584, return to origin timeout fault

0x6328, "Er.730", encoder battery warning

OxFFF1, "Er.900", DI emergency brake

0x7382, "Er.909", Motor overload warning

0x5442, "Er.920", brake resistance

0x3233, overload "Er.922", external brake

0x3211, resistance is too small "Er.939",

0x6329, motor power line break "Er.941",

0x3331, parameter change needs to be

0x632A, re-powered to take effect "Er.942",

0x7600, parameter storage frequently

0x5443, "Er.950", positive overrange

0x5444, warning "Er.952", Reverse

0x7381, overrange warning "Er.980", encoder internal fault warning

03135 "Er.990", input phase missing

OxFF98, warning "Er.998", return to zero

OxFF40, mode setting error "Er.A40",

0x5281, parameter identification failure

0x7504, "Er.106", Gatekeeper reset

07305, "Er.107", FPGA configuration error

02320, "Er.740", encoder connection

0x2380, error "Er.202", software

07580 overcurrent "Er.203", current zero

0x8481, is too large "Er.E09", EtherCAT

0x3125, communication failure

0x3126, "Er.235", speed tracking error is too large "Er.431", analog voltage is too large "Er.432", analog zero is too large

In 07760, "Er.760", encoder overheating alarm

0x6320, origin bias set incorrectly

0x6320, "Er.D11",

0x0110,"Er.D10", sync cycle

error is too large "Er.110", the synchronization period error is too large