ADAMPOWER®

Communication manual

Modbus_RTU

NEMA8 - NEMA23 Size Integrated Stepper Motor
RS485 Communication Controller User Mnaul

Modbus_RTU Communication Manual

I、 RS485 bus communication function

The driver is equipped with an industrial grade bus communication chip, and any industrial device with RS485 communication function can directly control the operation of the driver according to the Modbus RTU protocol. If necessary, up to 64 drives can be connected in series to achieve reliable construction of medium to large drive networks at lower costs.

II、 Communication rate and distance

The communication rate and distance are related to the specific site, and the typical relationship between rate and distance is as follows:

Communication rate (bps)	Communication distance (m)
9600	1000
19200	1000
38400	1000
57600	800
115200	500
256000	250

Due to external interference and differences in the number of bus nodes, there may be certain differences in the actual communication rate and distance on site.

III、Modbus RTU/RS485

Please refer to relevant documents for the Modbus RTU/RS485 protocol and standards, and this manual does not provide detailed explanations. This manual only introduces the protocol and standard content related to the use of the drive.

IV、Main station communication parameters

Baud rate: The factory default is 115200, and the driver baud rate can be set by the user. The master station must be consistent with the slave station.

Data Bit: 8

Stop Bit: 1

Check digit: None

V、Address Domain

0 is the broadcast address, and all child nodes can recognize the broadcast address, but do not send a return message.

1~64 sub node RTU addresses (RTU refers to remote terminal units, which here refer to drives). Child nodes can be added according to customer needs, with a default of 64.

VI、Function

The function codes supported by the drive are as follows:

Function	Function definition	format
0x03	Read single or multiple registers	WORD/DWORD/QWORD
0x06	Write a single register	WORD
0x10	Write multiple registers	WORD/DWORD/QWORD

Data: Contains the register address and operation data that needs to be operated on.

CRC code: Perform CRC

Data frame summary								
operation	Data frame							
Read a single register 0x04 Request message	Request message	Address Domain	Function	Register Address		Number of Registers		CRC
		1 byte	0x04	2 bytes		2 bytes		2 bytes
	Response message	Address Domain	Function	Register Address		Return data		CRC
		1 byte	0x04	1 byte		2 bytes		2 bytes
Response message	Request message	Address Domain	Function	Register Address		Number of Registers		CRC
		1 byte	0x03	2 bytes		2 bytes		2 bytes
	Response message	Address Domain	Function code	Register Address		Return data		CRC
		1 byte	0x03	1 byte		2n bytes		2 bytes
Read multiple registers 0x03 Request message	Request message	Address Domain	Function	Register Address		Write data		CRC
		1 byte	0x06	2 bytes		2 bytes		2 bytes
	Response message	Address Domain	Function	Register Address		Write data		CRC
		1 byte	0x06	2 bytes		2 bytes		2 bytes
Response message Write a single register 0x06	Request message	Address Domain	Function	Register Address	Number of Registers	Write data	Write data	CRC
		1 byte	0x10	2 bytes	2 bytes	1 byte	2n bytes	2 bytes
	Response message	Address Domain	Function	Register Address		Number of Registers		CRC
		1 byte	0x10	2 bytes		2 bytes		2 bytes

Note: 1. n represents the data length, and the drive memory unit is of type WORD, which is 2 bytes. Therefore, in multi byte Read/write operations, the number of bytes is positioned as a multiple of 2.

2. CRC is in low byte order format, while others are in high byte order format.

VII、Register List

Memory	type	describe	read	write
0x0000	UINT32	Hardware version	DWORD	X
0x0001				
0x0002	UINT32	Software version	DWORD	X
0x0003				
0x0004	UINT32	Actual motor position	DWORD	X
0x0005				
0x0006	UINT32	Status register	DWORD	X
0x0007				
0x0008	UINT16	Serial port timeout setting	WORD	WORD
0x0009	UINT16	Baud rate	WORD	WORD
0x000A	UINT16	Smoothing constant (pulse delay)	WORD	WORD
0x000B	UINT16	Dynamic Position Error Count	WORD	WORD
0x000C	UINT16	In-Position Error Count	WORD	WORD
0x000D	UINT16	Motor rated current	WORD	WORD
0x000E	UINT16	Motor idle current	WORD	WORD
0x000F	UINT16	Encoder line	WORD	WORD
0x0010	UINT16	Position fault warning	WORD	WORD
0x0011	UINT16	Rotor position and command position deviation	WORD	X
0x0012	UINT16	Alarm Status Setting Register	WORD	WORD
0x0013	UINT16	Filter frequency	WORD	WORD
0x0015	UINT16	Programming instruction execution line	WORD	X
0x0016	UINT16	Velocity(Max)	WORD	WORD
0x0017	UINT16	Encoder line(Min)	WORD	WORD
0x0019	UINT16	Actual velocity	WORD	X
0x001A	UINT16	Actual current	WORD	X
0x001B	UINT16	Input 0 delay setting	WORD	WORD
0x001C	UINT16	Input 1 delay setting	WORD	WORD
0x001D	UINT16	Input 2 delay setting	WORD	WORD
0x001E	UINT16	Input 3 delay setting	WORD	WORD
0x001F	UINT16	Input 4 delay setting	WORD	WORD
0x0020	UINT16	Input 5 delay setting	WORD	WORD
0x0021	UINT16	Input 6 delay setting	WORD	WORD
0x0022	UINT16	Input 7 delay setting	WORD	WORD
0x0024	UINT32	32-Bit subdivision	DWORD	DWORD
0x0025				
0x0026	UINT16	Motor inductance	WORD	WORD
0x0027	UINT16	Motor internal resistance	WORD	WORD
0x002C	UINT16	The first coding switch sets the velocity	WORD	WORD
0x002D	UINT16	The second coding switch sets the velocity	WORD	WORD
0x002E	UINT16	The third coding switch sets the velocity	WORD	WORD
0x002F	UINT16	The 4th coding switch sets the velocity	WORD	WORD
0x0030	UINT16	The 5th coding switch sets the velocity	WORD	WORD
0x0031	UINT16	The 6th coding switch sets the velocity	WORD	WORD
0x0032	UINT16	The 7th coding switch sets the velocity	WORD	WORD
0x0033	UINT16	The 8th coding switch sets the velocity	WORD	WORD
0x0044	UINT16	Maximum bus voltage	WORD	X
0x0045	UINT16	Maximum overload current	WORD	X
0x0046	UINT16	Number of lagging pulses	WORD	X
0x0047	UINT16	Number of leading pulses	WORD	X
0x0048	UINT16	Minimum bus voltage	WORD	X
0x0066	UINT16	Drive Base Address	WORD	WORD
0x006B	UINT16	Motor direction setting	WORD	WORD
0x006C	UINT16	Reverse Port Level	X	WORD
0x006E	UINT32	Software negative limit setting	DWORD	DWORD
0x006F				
0x0070	UINT32	Software positive limit setting	DWORD	DWORD
0x0071				

Memory	Type	Describe	Read	Write
0x0096	UINT16	Motor initial velocity	WORD	WORD
0x0097	UINT16	Motor stop velocity	WORD	WORD
0x0098	UINT16	Motor acceleration time	WORD	WORD
0x0099	UINT16	Motor deceleration time	WORD	WORD
0x009A	UINT16	Motor moving velocity	WORD	WORD
0x009B	UINT16	Limit setting	WORD	WORD
0x009C	UINT16	Enable Port and Homing Port Set/Cancel	WORD	WORD
0x009D	UINT16	Secondary return to home setting	WORD	WORD
0x009E	UINT16	Set torque mode and torque level	WORD	WORD
0x009F	UINT16	Control mode setting register	WORD	WORD
0x00A0	UINT16	Close output port	X	WORD
0x00A1	UINT16	Open output port	X	WORD
0x00A2	UINT16	Read output port status	WORD	X
0x00A3	UINT16	Read alarm status	WORD	X
0x00A4	UINT16	Clear alarm status	X	WORD
0x00A5	UINT16	Set/Cancel Alarm Output	WORD	WORD
0x00A6	UINT16	Set/Cancel Move Output	WORD	WORD
0x00A7	UINT16	Set/Cancel in place output	WORD	WORD
0x00A8	UINT32	Position reminder register (X11)	DWORD	DWORD
0x00A9				
0x00AA	UINT16	Table size	WORD	WORD
0x00AB	UINT16	Table pointer	WORD	WORD
0x00AC	UINT16	Table Start Address	WORD	WORD
0x00AD	UINT16	Set emergency stop input port	WORD	WORD
0x00AE	UINT16	Set the origin to the specified output port	WORD	WORD
0x00AF	UINT16	Set velocity switch port	WORD	WORD
0x00B0	UINT16		WORD	WORD
0x00B1	UINT16		WORD	WORD
0x00B2	UINT16		WORD	WORD
0x00B3	UINT16	Replace the velocity of 0x00AF 7-0 Bits	WORD	WORD
0x00B4	UINT16	Replace the velocity of 0x00B0 7-0 Bits	WORD	WORD
0x00B5	UINT16	Replace the velocity of 0x00B1 7-0 Bits	WORD	WORD
0x00B8	UINT16	Replace the velocity of 0x00B2 7-0 Bits	WORD	WORD
0x00B6	UINT32	Break positioning	X	DWORD
0x00B7				
0x00BA	UINT32	Start moving after triggering the specified input (Velocity mode)	WORD	WORD
0x00BB				
0x00BE	UINT16	Rotor position offset	WORD	WORD
0x00BF	UINT16	Position proportion gain	WORD	WORD
0x0029	UINT16	. Position integral gain	WORD	WORD
0x00C0	UINT16	Velocity mode proportion gain	WORD	WORD
0x00C1	UINT16	Velocity mode integral gain	WORD	WORD
0x00C2	UINT32	Position reminder register (X17)	DWORD	DWORD
0x00C3				
0x00C4	UINT32	Position reminder register (X18)	DWORD	DWORD
0x00C5				
0x00C6	UINT32	Position reminder register (X19)	DWORD	DWORD
0x00C7				
0x00C8	UINT16	Move command	X	WORD
0x00C9	UINT16	Return to Origin Execution Register	X	WORD
0x00CA	UINT16	Motor jog	X	WORD
0x00CB	UINT16	Execution torque mode	X	WORD
0x00CC	UINT32	Move Set Time (No target position)	X	DWORD
0x00CD				

Memory	Type	Describe	Read	Write
0x00CE	UINT32	Relative motion (In-position)	DWORD	DWORD
0x00CF				
0x00D0	UINT32	Absolute motion (In-position)	X	DWORD
0x00D1				
0x00D2	UINT32	Set the current absolute position	X	DWORD
0x00D3				
0x00D4	UINT16	Disable/Enable/ Driver restart	WORD	WORD
0x00D5	UINT16	Single initial velocity	WORD	WORD
0x00D6	UINT16	Single stop velocity	WORD	WORD
0x00D7	UINT16	Single acceleration time	WORD	WORD
0x00D8	UINT16	Single deceleration time	WORD	WORD
0x00D9	UINT16	Single target velocity	WORD	WORD
0x00DB	UINT16	Execute programming commands	X	WORD
0x00DC	UINT16	Save command	X	WORD
0x00DD	UINT16	Execute Table Data Register	X	WORD
0x00DE	UINT32	Relative motion (Any position)	X	DWORD
0x00DF				
0x00E8	UINT32	Absolute motion (Any position)	X	DWORD
0x00E9				

VIII、 Register Explanation

1. Driver hardware version number

Address: 0x0000~0x0001

Description: Driver hardware version number

Operation: ReadDWORD

Bit	Name	Type	Data range	Default	Notes
0-31	Drive model	String	0-4294967295	Factory value	Read: Drive Name Write: Illegal

This register is solidified at the factory, and the register value is converted into ASCII code, which is the actual version number

Example (in the example, the Slave Address is the drive address, which is set through the code removal switch. If the address is changed, it needs to be re verified):

	Field Name	Slave Address	Function	Starting Address Hi	Starting Address Lo	No.of Points Hi	No.of Points Lo	CRC	
Read	Query	01	03	00	00	00	02	C4	0B
	Field Name	Slave Address	Function	Bytes	Data Hi	Data Lo	Data Hi	Data Lo	CRC
	Response	01	03	04	37	31	00	30	A5 9C

2. Driver software version number

Address: 0x0002~0x0003

Description: Driver software version number

Operation: ReadDWORD

Bit	Name	Type	Data range	Default	Notes
0-31	Drive model	String	0-4294967295	Factory value	Read: Drive Name Write: Illegal

This register is solidified at the factory, and the register value is converted into ASCII code, which is the actual version number

Example (in the example, the Slave Address is the drive address, which is set through the code removal switch. If the address is changed, it needs to be re verified):

	Field Name	Slave Address	Function	Starting Address Hi	Starting Address Lo	No.of Points Hi	No.of Points Lo	CRC	
Read	Query	01	03	00	02	00	02	65	CB
	Field Name	Slave Address	Function	Bytes	Data Hi	Data Lo	Data Hi	Data Lo	CRC
	Response	01	03	04	30	31	00	35	64 EB

3. Actual position register of motor

Address: 0x0004~0x0005

Explanation: The current absolute position of the motor

Operation: ReadDWORD

Bit	Name	Type	Data range	Default	Notes
0-31	Drive model	String	-2147483648~2147483647	Factory value	Read: Drive Name Write: Illegal

Example (in the example, the Slave Address is the drive address, which is set through the code removal switch. If the address is changed, it needs to be re verified):

	Field Name	Slave Address	Function	Starting Address Hi	Starting Address Lo	No.of Points Hi	No.of Points Lo	CRC	
Read	Query	01	03	00	04	00	02	85	CA
	Field Name	Slave Address	Function	Bytes	Data Hi	Data Lo	Data Hi	Data Lo	CRC
	Response	01	03	04	00	00	00	00	FA 33

4. Status Registers

Address: 0x0006~0x0007

Description: Operation status and input status of the motor

Operation: ReadWORD

Bit	Name	Type	Range	Default	Notes
20-31	hold				Reserved, value constant 0
19	Position reminder flag				The ≥ or < can be set, and the position data satisfies the condition value to 1
18	Position reminder flag	Bit	0-1	0	The ≥ or < can be set, and the position data satisfies the condition value to 1
17	Position reminder flag	Bit	0-1	0	The ≥ or < can be set, and the position data satisfies the condition value to 1
16	Enable level flag	Bit	0-1	0	1:high level enable, 0:low level enable
15	Homing completion flag	Bit	0-1	0	0：Not in position 0;1: At position 0
14	Software positive limit flag	Bit	0-1	0	0: The current position ＜ the set value; 1: The current position ≥ the set value
13	Software negative limit flag	Bit	0-1	0	0: The current position ＞ the set value; 1: The current position ≤ the set value
12	In place output flag	Bit	0-1	0	0: Not in-position; 1: In-position
11	Position reminder flag	Bit	0-1	0	The ≥ or < can be set, and the position data satisfies the condition value to 1
10	Position out of tolerance warning	Bit	0-1	0	Rotor position and command position outliers are marked as 1 when the 0x0010 setpoint is exceeded
9	moving state	Bit	0-1	0	00: Motor idle 01: About to move 02: About to stop 03: Motor moving
8		Bit	0-1	0	
7	X7 input status	Bit	0-1	0	0:Low level ; 1:High level
6	X6 input status	Bit	0-1	0	0:Low level ; 1:High level
5	X5 input status	Bit	0-1	0	0:Low level ; 1:High level
4	X4 input status	Bit	0-1	0	0:Low level ; 1:High level
3	X3 input status	Bit	0-1	0	0:Low level ; 1:High level
2	X2 input status	Bit	0-1	0	0:Low level ; 1:High level
1	X1 input status	Bit	0-1	0	0:Low level ; 1:High level
0	X0 input status	Bit	0-1	0	0:Low level ; 1:High level

Example: When X1 has input and the motor is in motion, the reading result is as follows.

	Field Name	Slave Address	Function	Starting Address Hi	Starting Address Lo	No.of Points Hi	No.of Points Lo	CRC	
Read	Query	01	03	00	06	00	02	24	OA
	Field Name	Slave Address	Function	Bytes	Data Hi	Data Lo	Data Hi	Data Lo	CRC
	Response	01	03	04	10	00	0F	0A	FB 7B

5. Serial port timeout setting register

Address: 0x0008

Description: Set the serial port timeout time. If it exceeds the set value, it will be disconnected by default. If it is 0, it will be cancelled

Operation: ReadWORD/WriteWORD. Save by 0x00DC

Bit	Name	Type	Data range	Default	Notes
0-15	Serial port timeout time	String	0-65535	Memory value	Read/write: Serial port timeout time, factory default 0, unit: 10ms

Example: Reading the serial port timeout time

	Field Name	Slave Address	Function	Address Hi	Address Lo	No.of Points Hi	No.of Points Lo	CRC	
Read	Query	01	03	00	08	00	01	05	C8
	Field Name	Slave Address	Function	Bytes	Data Hi	Data Lo	CRC		
	Response	01	03	02	00	00	B8	44	

Set the timeout time of 100ms. Divide by 10 to obtain a value of 0x000A

	Field Name	Slave Address	Function	Address Hi	Address Lo	Data Hi	Data Lo	CRC	
Write	Query/ Response	01	06	00	08	00	0A	88	OF

6. Baud rate setting register

Address: 0x0009

Description: Set the driver baud rate

Operation: ReadWORD/WriteWORD, Save by 0x00DC

Bit	Name	Type	Data range	Default	Notes
0-15	Driver Baud Rate	String	1-15	Memory value	Read/write: The baud rate of the drive is factory default at 115200

The corresponding relationship of baud rate is as follows:

1=300, 2=600, 3=1200, 4=2400, 5=4800, 6=9600, 7=14400, 8=19200, 9=38400, 10=56000, 11=57600, 12=115200

13=230400, 14=460800, 15=921600

Example: The default baud rate for reading is 0x000C, which is 115200.

Read	Field Name	Slave Address	Function	Address Hi	Address Lo	No.of Points Hi	No.of Points Lo	CRC	
	Query	01	03	00	09	00	01	54	08
	Field Name	Slave Address	Function	Bytes	Data Hi	Data Lo	CRC		
	Response	01	03	02	00	0C	B8	41	

Set the baud rate to 9600, which means the value is 0x0006

Write	Field Name	Slave Address	Function	Address Hi	Address Lo	Data Hi	Data Lo	CRC	
	Query/ Response	01	06	00	09	00	06	D9	CA

Note: The settings will take effect immediately. If you need to power off and save, you need to modify the communication parameters while the drive is constantly powered on, and then send the power off and save command. Once completed, you can save after power outage. Otherwise, the factory default value of 115200 will be restored after power outage.

7. Smoothing constant

Address: 0x000A

Description: Set smoothing constant

Operation: ReadWORD/WriteWORD, Save by 0x00DC

Bit	Name	Type	Data range	Default	Notes
0-15	Smoothing constant	String	1-2500	Memory value	Read/write: Smooth constant Factory default: Open loop -250, Closed loop -25

The smaller the value, the better the smoothness, the longer the pulse delay, and the slower the response; The larger the value, the worse the smoothness, the smaller the pulse delay, and the faster the response.

Pulse delay (ms)=1000 ÷ smoothing constant

Example: Reading the default smoothing constant of 0x00FA, which means a pulse delay of 4ms

Read	Field Name	Slave Address	Function	Address Hi	Address Lo	No.of Points Hi	No.of Points Lo	CRC	
	Query	01	03	00	0A	00	01	A4	08
	Field Name	Slave Address	Function	Bytes	Data Hi	Data Lo	CRC		
	Response	01	03	02	00	FA	38	07	

Set the smoothing constant to 0x03E8, which means the pulse delay is 1ms

Write	Field Name	Slave Address	Function	Address Hi	Address Lo	Data Hi	Data Lo	CRC	
	Query/ Response	01	06	00	0A	03	E8	A9	76

8. Dynamic Position Error Count

Address: 0x000B

Description: Set the dynamic following error alarm threshold (only valid for closed-loop)

Operation: ReadWORD/WriteWORD, Save by 0x00DC

Bit	Name	Type	Data range	Default	Notes
0-15	Dynamic Position Error Count	String	0-65535	Memory value	Alarm: actual count ≥ set value; 0: canceled

Example: Read the default value of 200 steps (equivalent to 360 °).

Read	Field Name	Slave Address	Function	Address Hi	Address Lo	No.of Points Hi	No.of Points Lo	CRC	
	Query	01	03	00	0B	00	01	F5	C8
	Field Name	Slave Address	Function	Bytes	Data Hi	Data Lo	CRC		
	Response	01	03	02	00	C8	B9	D2	

Set the alarm threshold to 100 steps (180 °) to alert when in motion

Write	Field Name	Slave Address	Function	Address Hi	Address Lo	Data Hi	Data Lo	CRC	
	Query/ Response	01	06	00	0B	00	64	F9	E3

9. In-Position Error Count

Address: 0x000C

Description: Set the static position error alarm threshold (only valid for closed-loop)

Operation: ReadWORD/WriteWORD, Save by 0x00DC

Bit	Name	Type	Data range	Default	Notes
0-15	In-Position Error Count	String	0-65535	Memory value	Alarm: actual count ≥ set value; 0: canceled

Example: Read the default value of 100 steps (equivalent to 180 °).

	Field Name	Slave Address	Function	Address Hi	Address Lo	No.of Points Hi	No.of Points Lo	CRC	
Read	Query	01	03	00	0C	00	01	44	09
	Field Name	Slave Address	Function	Bytes	Data Hi	Data Lo	CRC		
	Response	01	03	02	00	C8	B9	D2	

Set the alarm threshold to 50 steps (90 °) for alarm

	Field Name	Slave Address	Function	Address Hi	Address Lo	Data Hi	Data Lo	CRC	
Write	Query/ Response	01	06	00	0C	00	32	C8	1C

10. Rated current of motor

Address: 0x000D

Description: Set the rated current of the motor

Operation: ReadWORD/WriteWORD, Save by 0x00DC

Bit	Name	Type	Data range	Default	Notes
0-15	Rated current	String	10-650	Memory value	Write: Expand the rated current by 100 times, Unit: A

Example: Read the default value of 100, which is equivalent to 1A.

	Field Name	Slave Address	Function	Address Hi	Address Lo	No.of Points Hi	No.of Points Lo	CRC	
Read	Query	01	03	00	0D	00	01	15	C9
	Field Name	Slave Address	Function	Bytes	Data Hi	Data Lo	CRC		
	Response	01	03	02	00	64	B9	AF	

Set the rated current of the motor to 500, equivalent to 5A.

	Field Name	Slave Address	Function	Address Hi	Address Lo	Data Hi	Data Lo	CRC	
Write	Query/ Response	01	06	00	0D	01	F4	18	1E

11. Percentage of idle current and operating minimum current

Address: 0x000E

Description: Set the idle current and minimum operating current percentage of the motor

Operation: ReadWORD/WriteWORD, Save by 0x00DC

	Bit	Name	Type	Data range	Default	Notes
Open loop	15-8	Hold	Bit	0	0	Reserved, meaningless
	7-0	Idle current%	Bit	0-100	Memory value	Motor idle current percentage
Closed loop	15-8	Operating current(min)%	Bit	0-100	Memory value	Minimum operating current percentage
	7-0	Idle current percentage	Bit	0-100	Memory value	Motor idle current percentage

Example: Closed loop reading default value 0x1919. Idle current 25%, minimum operating current 25%.

	Field Name	Slave Address	Function	Address Hi	Address Lo	No.of Points Hi	No.of Points Lo	CRC	
Read	Query	01	03	00	0E	00	01	E5	C9
	Field Name	Slave Address	Function	Bytes	Data Hi	Data Lo	CRC		
	Response	01	03	02	19	19	72	1E	

Set the minimum operating current to 25% and idle current to 50%, which means the value is 0x1932

	Field Name	Slave Address	Function	Address Hi	Address Lo	Data Hi	Data Lo	CRC	
Write	Query/ Response	01	06	00	0E	19	32	62	4C

12. Encoder line

Address: 0x000F

Description: Set encoder line (only valid for closed-loop)

Operation: ReadWORD/WriteWORD, Save by 0x00DC

Bit	Name	Type	Data range	Default	Notes
0-15	Motor encoder line	String	1~65535	Memory value	Read/write: motor encoder line

Example: Closed loop reading default value 1000.

	Field Name	Slave Address	Function	Address Hi	Address Lo	No.of Points Hi	No.of Points Lo	CRC	
Read	Query	01	03	00	0F	00	01	B4	09
	Field Name	Slave Address	Function	Bytes	Data Hi	Data Lo	CRC		
	Response	01	03	02	03	E8	B8	FA	

Set the encoder resolution to 2500, which means the value is 0x09C4

	Field Name	Slave Address	Function	Address Hi	Address Lo	Data Hi	Data Lo	CRC	
Write	Query/ Response	01	06	00	0F	09	C4	BE	0A

13. Position fault warning

Address: 0x0010

Explanation: Set value ≥ actual deviation, X10 value is 1. (Only valid for closed-loop)

Operation: ReadWORD/WriteWORD, Save by 0x00DC

Bit	Name	Type	Data range	Default	Notes
0-15	Set the position fault	String	1~65535	Memory value	Read/write: Position fault warning value, Default:20; unit: steps (1.8 °)

Example: Closed loop reading default value of 20.

	Field Name	Slave Address	Function	Address Hi	Address Lo	No.of Points Hi	No.of Points Lo	CRC	
Read	Query	01	03	00	10	00	01	85	CF
	Field Name	Slave Address	Function	Bytes	Data Hi	Data Lo	CRC		
	Response	01	03	02	00	14	B8	4B	

Set the difference between the rotor position and the command position to exceed 100, which means the value is 0x0064

	Field Name	Slave Address	Function	Address Hi	Address Lo	Data Hi	Data Lo	CRC	
Write	Query/ Response	01	06	00	10	00	64	89	E4

14. Rotor position and command position deviation

Address: 0x0011

Explanation: Magnify 100 times the value of rotor position and command position deviation.

Operation: ReadWORD

Bit	Name	Type	Data range	Default	Notes
0-15	Rotor position and command position overshoot	String	0-65535	Memory value	Read: Magnify 100 times the value of rotor position and command position deviation. Unit: 1/100 pulse

Example: Read the actual deviation value between the rotor position and the command position.

	Field Name	Slave Address	Function	Address Hi	Address Lo	No.of Points Hi	No.of Points Lo	CRC	
Read	Query	01	03	00	11	00	01	D4	0F
	Field Name	Slave Address	Function	Bytes	Data Hi	Data Lo	CRC		
	Response	01	03	02	00	00	B8	44	

15. Alarm Status Setting Register

Address: 0x0012

Description: Operation status and input status of the motor

Operation: ReadWORD

Bit	Name	Type	Range	Default	Notes
15	hold	Bit	0-1	0	Reserved, value constant 0
14	hold	Bit	0-1	0	Reserved, value constant 0
13	hold	Bit	0-1	0	Reserved, value constant 0
12	hold	Bit	0-1	0	Reserved, value constant 0
11	hold	Bit	0-1	0	Reserved, value constant 0
10	hold	Bit	0-1	0	Reserved, value constant 0
9	hold	Bit	0-1	0	Reserved, value constant 0
8	hold	Bit	0-1	0	Reserved, value constant 0
7	hold	Bit	0-1	0	Reserved, value constant 0
6	hold	Bit	0-1	0	Reserved, value constant 0
5	hold	Bit	0-1	0	Reserved, value constant 0
4	Power on Enable	Bit	0-1	0	Enable state when powered on: 0 enabled, 1 disabled
3	Test mode	Bit	0-1	0	Enter test mode: 0 is allowed, 1 is forbade
2	Under voltage reset	Bit	0-1	0	Under voltage reset: 0 is forbade, 1 is allowed
1	Under voltage alarm	Bit	0-1	0	Under voltage alarm: 0 is allowed, 1 is forbade
0	Phase open circuit alarm	Bit	0-1	0	Phase open circuit alarm: 0 is allowed, 1 is forbade

Example: Read the factory default values and the results are as follows.

	Field Name	Slave Address	Function	Address Hi	Address Lo	No.of Points Hi	No.of Points Lo	CRC
Read	Query	01	03	00	12	00	01	24 OF
	Field Name	Slave Address	Function	Bytes	Data Hi	Data Lo	CRC	
	Response	01	03	02	00	00	B8	44

Forbid phase open circuit alarm and Forbid entering test mode

	Field Name	Slave Address	Function	Address Hi	Address Lo	Data Hi	Data Lo	CRC
Write	Query/ Response	01	06	00	12	00	09	E9 C9

16. Programming instruction execution line

Address: 0x0015

Description: Programming instruction execution position

Operation: ReadWORD

Bit	Name	Type	Data range	Default	Notes
0-15	Programming instruction execution line	String	1-2048	Memory value	Reading: Current Execution Position of Programming Instruction

Example: Reads the current execution position of a programmed instruction.

	Field Name	Slave Address	Function	Address Hi	Address Lo	No.of Points Hi	No.of Points Lo	CRC
Read	Query	01	03	00	15	00	01	95 CE
	Field Name	Slave Address	Function	Bytes	Data Hi	Data Lo	CRC	
	Response	01	03	02	00	00	B8	44

17. Velocity(Max)

Address: 0x0016

Description: Maximum velocity in operation

Operation: ReadWORD/WriteWORD, no memory

Bit	Name	Type	Data range	Default	Notes
0-15	Maximum velocity in operation	String	1-2048	Memory value	Read: The maximum velocity in operation

Explanation: The moving velocity maximum can change at any time, only the measured maximum is displayed, if you need to retest, you can write 0 to clear the current maximum to retest.

Example: Read the maximum velocity during operation

	Field Name	Slave Address	Function	Address Hi	Address Lo	No.of Points Hi	No.of Points Lo	CRC
Read	Query	01	03	00	16	00	01	65 CE
	Field Name	Slave Address	Function	Bytes	Data Hi	Data Lo	CRC	
	Response	01	03	02	00	27	F8	5E

Clear maximum velocity record value

	Field Name	Slave Address	Function	Address Hi	Address Lo	Data Hi	Data Lo	CRC
Write	Query/ Response	01	06	00	16	00	00	68 0E

18. Encoder line(Min)

Address: 0x0017

Explanation: Setting of the minimum encoder resolution (only valid for closed loop), if the actual number of encoders is less than this number, work in open loop mode

Operation: ReadWORD/WriteWORD, Save by 0x00DC

Bit	Name	Type	Data range	Default	Notes
0-15	Encoder line(Min)	String	1~65535	Memory value	Read/write: Minimum number of encoder lines

Example: Closed loop reading default value 200.

	Field Name	Slave Address	Function	Address Hi	Address Lo	No.of Points Hi	No.of Points Lo	CRC	
Read	Query	01	03	00	17	00	01	34	0E
	Field Name	Slave Address	Function	Bytes	Data Hi	Data Lo	CRC		
	Response	01	03	02	00	C8	B9	D2	

If the encoder is actually 1000 lines and you want to change to open loop mode, you can set the encoder fine resolution to 2000, value 0x07D0.

	Field Name	Slave Address	Function	Address Hi	Address Lo	Data Hi	Data Lo	CRC	
Write	Query/ Response	01	06	00	17	07	D0	3A	62

19. Actual velocity

Address: 0x0019

Explanation: Read the actual velocity (Command velocity when open loop, rotor velocity when closed loop)

Operation: ReadWORD

Bit	Name	Type	Data range	Default	Notes
0-15	Actual velocity	String	0-65535	0	Read: Actual velocity, unit: rpm, write: illegal

Example: Reading actual velocity of 0 when stationary

	Field Name	Slave Address	Function	Address Hi	Address Lo	No.of Points Hi	No.of Points Lo	CRC	
Read	Query	01	03	00	19	00	01	55	CD
	Field Name	Slave Address	Function	Bytes	Data Hi	Data Lo	CRC		
	Response	01	03	02	00	00	B8	44	

20. Actual current

Address: 0x001A

Explanation: Read the actual current

Operation: ReadWORD

Bit	Name	Type	Data range	Default	Notes
0-15	Actual current	String	0-65535	0	Read: Actual current, unit: mA, write: illegal

Example: Reading the actual current

	Field Name	Slave Address	Function	Address Hi	Address Lo	No.of Points Hi	No.of Points Lo	CRC	
Read	Query	01	03	00	1A	00	01	A5	CD
	Field Name	Slave Address	Function	Bytes	Data Hi	Data Lo	CRC		
	Response	01	03	02	02	0D	78	E1	

The current value is changing all the time, so the result will be different for each reading.

21. Input 0 delay setting

Address: 0x001B

Description: Input 0 (X0) Receive signal delay time setting, Unit: ms

Operation: ReadWORD/WriteWORD, Save by 0x00DC

Bit	Name	Type	Data range	Default	Notes
0-15	X0 receive delay	String	0-65535	Memory value	Read/write: X0 receives signal delay time.

Example: Read the default value of 2.

	Field Name	Slave Address	Function	Address Hi	Address Lo	No.of Points Hi	No.of Points Lo	CRC	
Read	Query	01	03	00	1B	00	01	F4	0D
	Field Name	Slave Address	Function	Bytes	Data Hi	Data Lo	CRC		
	Response	01	03	02	00	02	39	85	

Set input 0 to receive signal delay time of 50ms

	Field Name	Slave Address	Function	Address Hi	Address Lo	Data Hi	Data Lo	CRC	
Write	Query/ Response	01	06	00	1B	00	32	78	18

22. Input 1 delay setting

Address: 0x001C

Description: Input 1 (X1) Receive signal delay time setting, Unit: ms

Operation: ReadWORD/WriteWORD, Save by 0x00DC

Bit	Name	Type	Data range	Default	Notes
0-15	X1 receive delay	String	0-65535	Memory value	Read/write: X1 receives signal delay time.

Example: Read the default value of 2.

Read	Field Name	Slave Address	Function	Address Hi	Address Lo	No.of Points Hi	No.of Points Lo	CRC	
	Query	01	03	00	1C	00	01	45	CC
	Field Name	Slave Address	Function	Bytes	Data Hi	Data Lo	CRC		
	Response	01	03	02	00	02	39	85	

Set input 1 to receive signal delay time of 50ms

Write	Field Name	Slave Address	Function	Address Hi	Address Lo	Data Hi	Data Lo	CRC	
	Query/ Response	01	06	00	1C	00	32	C9	D9

23. Input 2 delay setting

Address: 0x001D

Description: Input 2 (X2) Receive signal delay time setting, Unit: ms

Operation: ReadWORD/WriteWORD, Save by 0x00DC

Bit	Name	Type	Data range	Default	Notes
0-15	X2 receive delay	String	0-65535	Memory value	Read/write: X2 receives signal delay time.

Example: Read the default value of 2.

Read	Field Name	Slave Address	Function	Address Hi	Address Lo	No.of Points Hi	No.of Points Lo	CRC	
	Query	01	03	00	1D	00	01	14	0C
	Field Name	Slave Address	Function	Bytes	Data Hi	Data Lo	CRC		
	Response	01	03	02	00	02	39	85	

Set input 2 to receive signal delay time of 50ms

Write	Field Name	Slave Address	Function	Address Hi	Address Lo	Data Hi	Data Lo	CRC	
	Query/ Response	01	06	00	1D	00	32	98	19

24. Input 3 delay setting

Address: 0x001E

Description: Input 3 (X3) Receive signal delay time setting, Unit: ms

Operation: ReadWORD/WriteWORD, Save by 0x00DC

Bit	Name	Type	Data range	Default	Notes
0-15	X3 receive delay	String	0-65535	Memory value	Read/write: X3 receives signal delay time.

Example: Read the default value of 2.

Read	Field Name	Slave Address	Function	Address Hi	Address Lo	No.of Points Hi	No.of Points Lo	CRC	
	Query	01	03	00	1E	00	01	E4	0C
	Field Name	Slave Address	Function	Bytes	Data Hi	Data Lo	CRC		
	Response	01	03	02	00	02	39	85	

Set input 3 to receive signal delay time of 150ms

Write	Field Name	Slave Address	Function	Address Hi	Address Lo	Data Hi	Data Lo	CRC	
	Query/ Response	01	06	00	1E	00	96	69	A2

25. Input 4 delay setting

Address: 0x001F

Description: Input 4 (X4) Receive signal delay time setting, Unit: ms

Operation: ReadWORD/WriteWORD, Save by 0x00DC

Bit	Name	Type	Data range	Default	Notes
0-15	X4 receive delay	String	0-65535	Memory value	Read/write: X4 receives signal delay time.

Example: Read the default value of 2.

Read	Field Name	Slave Address	Function	Address Hi	Address Lo	No.of Points Hi	No.of Points Lo	CRC	
	Query	01	03	00	1F	00	01	B5	CC
	Field Name	Slave Address	Function	Bytes	Data Hi	Data Lo	CRC		
	Response	01	03	02	00	02	39	85	

Set input 4 to receive signal delay time of 200ms

Write	Field Name	Slave Address	Function	Address Hi	Address Lo	Data Hi	Data Lo	CRC	
	Query/ Response	01	06	00	1F	00	C8	B9	9A

26. Input 5 delay setting

Address: 0x0020

Description: Input 5 (X5) Receive signal delay time setting, Unit: ms

Operation: ReadWORD/WriteWORD, Save by 0x00DC

Bit	Name	Type	Data range	Default	Notes
0-15	X5 receive delay	String	0-65535	Memory value	Read/write: X5 receives signal delay time.

Example: Read the default value of 2.

Read	Field Name	Slave Address	Function	Address Hi	Address Lo	No.of Points Hi	No.of Points Lo	CRC	
	Query	01	03	00	20	00	01	85	C0
	Field Name	Slave Address	Function	Bytes	Data Hi	Data Lo	CRC		
	Response	01	03	02	00	02	39	85	

Set input 5 to receive signal delay time of 250ms

Write	Field Name	Slave Address	Function	Address Hi	Address Lo	Data Hi	Data Lo	CRC	
	Query/ Response	01	06	00	20	00	FA	08	43

27. Input 6 delay setting

Address: 0x0021

Description: Input 6 (X6) Receive signal delay time setting, Unit: ms

Operation: ReadWORD/WriteWORD, Save by 0x00DC

Bit	Name	Type	Data range	Default	Notes
0-15	X6 receive delay	String	0-65535	Memory value	Read/write: X6 receives signal delay time.

Example: Read the default value of 2.

Read	Field Name	Slave Address	Function	Address Hi	Address Lo	No.of Points Hi	No.of Points Lo	CRC	
	Query	01	03	00	21	00	01	D4	00
	Field Name	Slave Address	Function	Bytes	Data Hi	Data Lo	CRC		
	Response	01	03	02	00	02	39	85	

Set input 6 to receive signal delay time of 300ms

Write	Field Name	Slave Address	Function	Address Hi	Address Lo	Data Hi	Data Lo	CRC	
	Query/ Response	01	06	00	21	01	2C	D9	8D

28. Input 7 Delay Setting

Address: 0x0022

Description: Input 7 (X7) Receive signal delay time setting, Unit: ms

Operation: ReadWORD/WriteWORD, Save by 0x00DC

Bit	Name	Type	Data range	Default	Notes
0-15	X7 receive delay	String	0-65535	Memory value	Read/write: X7 receives signal delay time.

Example: Read the default value of 2.

Read	Field Name	Slave Address	Function	Address Hi	Address Lo	No.of Points Hi	No.of Points Lo	CRC	
	Query	01	03	00	22	00	01	24	00
	Field Name	Slave Address	Function	Bytes	Data Hi	Data Lo	CRC		
	Response	01	03	02	00	02	39	85	

Set input 7 to receive signal delay time of 500ms

Write	Field Name	Slave Address	Function	Address Hi	Address Lo	Data Hi	Data Lo	CRC	
	Query/ Response	01	06	00	22	01	F4	29	D7

29. 32-Bit subdivision register

Address: 0x0024~0x0025

Description: Set 32-Bit subdivision.

Operation: ReadDWORD/WriteDWORD, Save by 0x00DC

Bit	Name	Type	Data range	Default	Notes
0-31	32-Bit subdivision	String	200~1000000	Factory value	Read/write: Number of pulses per revolution, unit: pulse/revolution

Example: Reading Default Subdivision 4000

Read	Field Name	Slave Address	Function	Starting Address Hi	Starting Address Lo	No.of Points Hi	No.of Points Lo	CRC	
	Query	01	03	00	24	00	02	84	00
	Field Name	Slave Address	Function	Bytes	Data Hi	Data Lo	Data Hi	Data Lo	CRC
	Response	01	03	04	0F	A0	00	00	F9 05

Set Subdivision 10000

Write	Field Name	Slave Address	Function	Starting Address Hi	Starting Address Lo	No.of Points		Byte Count	Data Hi	Data Lo	Data Hi	Data Lo	CRC
	Query	01	10	00	24	00	02	04	27	10	00	00	FB 35
	Field Name	Slave Address	Function	Address Hi	Address Lo	No.of Points		CRC					
	Response	01	10	00	24	00	02	01	C3				

30. Motor inductance

Address: 0x0026

Description: Set the motor inductance

Operation: ReadWORD/WriteWORD, Save by 0x00DC

Bit	Name	Type	Data range	Default	Notes
0-15	Motor inductance	String	0-65535	Memory value	Read/write: Amplify the motor inductance by 100 times, unsigned number, Unit: mH

Explanation: The drive will automatically detect the motor inductance and internal resistance when it is powered on, if you set it manually and save it in power off, the set value will prevail. The next power-on will not self-test again.

Example: Reading the motor inductance of 3.7 mH. Value is 370

Read	Field Name	Slave Address	Function	Address Hi	Address Lo	No.of Points Hi	No.of Points Lo	CRC	
	Query	01	03	00	26	00	01	65	C1
	Field Name	Slave Address	Function	Bytes	Data Hi	Data Lo	CRC		
	Response	01	03	02	01	72	39	F1	

Set the motor inductance to 1.5mH, i.e. the value is 0x0096

Write	Field Name	Slave Address	Function	Address Hi	Address Lo	Data Hi	Data Lo	CRC	
	Query/ Response	01	06	00	26	00	96	E8	6F

31. Motor internal resistance

Address: 0x0027

Description: Set the internal resistance of the motor

Operation: ReadWORD/WriteWORD , Save by 0x00DC

Bit	Name	Type	Data range	Default	Notes
0-15	Motor internal resistance	String	0-65535	Memory value	Read/write: Amplify motor internal resistance by 100 times, unsigned number, Unit:Ω

Explanation: The drive will automatically detect the motor inductance and internal resistance when it is powered on, if you set it manually and save it in power off, the set value will prevail. The next power-on will not self-test again.

Example: Reading the internal resistance of the motor 0.6 Ω. Value is 60

	Field Name	Slave Address	Function	Address Hi	Address Lo	No.of Points Hi	No.of Points Lo	CRC	
Read	Query	01	03	00	27	00	01	34	01
	Field Name	Slave Address	Function	Bytes	Data Hi	Data Lo	CRC		
	Response	01	03	02	00	3C	B8	55	

Set the internal resistance value of the motor to 1 Ω, which is 0x0064

	Field Name	Slave Address	Function	Address Hi	Address Lo	Data Hi	Data Lo	CRC	
Write	Query/ Response	01	06	00	27	00	64	38	2A

32. Maximum value of bus voltage

Address: 0x0044

Description: Read the maximum value of bus voltage

Operation: ReadWORD/WriteWORD

Bit	Name	Type	Data range	Default	Notes
0-15	Bus voltage(Max)	String	0-65535	Factory value	Read: Amplify the maximum value of bus voltage by 100 times, unsigned number, unit: V

Example: Read the maximum bus voltage of 24.21V.

	Field Name	Slave Address	Function	Address Hi	Address Lo	No.of Points Hi	No.of Points Lo	CRC	
Read	Query	01	03	00	44	00	01	C4	1F
	Field Name	Slave Address	Function	Bytes	Data Hi	Data Lo	CRC		
	Response	01	03	02	09	75	7F	F3	

The maximum value of bus voltage can change at any time, only the measured maximum value is displayed. If retesting is required, you can write 0 to clear the current maximum value and retest.

	Field Name	Slave Address	Function	Address Hi	Address Lo	Data Hi	Data Lo	CRC	
Write	Query/ Response	01	06	00	44	00	00	C9	DF

33. Maximum overload current

Address: 0x0045

Explanation: Read the maximum value of the amplification current

Operation: ReadWORD/WriteWORD

Bit	Name	Type	Data range	Default	Notes
0-15	Amplification current(Max)	String	0-65535	Factory value	Read: Amplify the maximum value of the amplification current by 100 times, unsigned number, unit A

Example: Read the maximum amplification current value of 4.16A.

	Field Name	Slave Address	Function	Address Hi	Address Lo	No.of Points Hi	No.of Points Lo	CRC	
Read	Query	01	03	00	45	00	01	95	DF
	Field Name	Slave Address	Function	Bytes	Data Hi	Data Lo	CRC		
	Response	01	03	02	01	A0	B9	AC	

The maximum value of the amplification current can change at any time, only the measured maximum value is displayed.
If retesting is required, you can write 0 to clear the current maximum value and retest.

	Field Name	Slave Address	Function	Address Hi	Address Lo	Data Hi	Data Lo	CRC	
Write	Query/ Response	01	06	00	45	00	00	98	1F

34. Maximum value of lagging pulse

Address: 0x0046

Explanation: Read the maximum value of hysteresis pulse during operation

Operation: ReadWORD/WriteWORD

Bit	Name	Type	Data range	Default	Notes
0-15	Lagging pulse(Max)	String	0-65535	Factory value	Read: Maximum value of lag pulse, unsigned, unit:pcs

Example: Read the maximum value of 199 lagging pulses.

	Field Name	Slave Address	Function	Address Hi	Address Lo	No.of Points Hi	No.of Points Lo	CRC	
Read	Query	01	03	00	46	00	01	65	DF
	Field Name	Slave Address	Function	Bytes	Data Hi	Data Lo	CRC		
	Response	01	03	02	00	C7	F9	D6	

The maximum value of the hysteresis pulse can change at any time, only the measured maximum value is displayed. If retesting is required, you can write 0 to clear the current maximum value and retest.

	Field Name	Slave Address	Function	Address Hi	Address Lo	Data Hi	Data Lo	CRC	
Write	Query/ Response	01	06	00	46	00	00	68	1F

35. Maximum value of leading pulse

Address: 0x0047

Explanation: Read the maximum value of the lead pulse during operation

Operation: ReadWORD/WriteWORD

Bit	Name	Type	Data range	Default	Notes
0-15	Leadingpulse(Max)	String	0-65535	Factory value	Read: Maximum value of leading pulse, unsigned,unit: pcs

Example: Read the maximum value of 56 leading pulses.

	Field Name	Slave Address	Function	Address Hi	Address Lo	No.of Points Hi	No.of Points Lo	CRC	
Read	Query	01	03	00	47	00	01	34	1F
	Field Name	Slave Address	Function	Bytes	Data Hi	Data Lo	CRC		
	Response	01	03	02	00	38	B9	96	

The maximum value of the lead pulse can change at any time, only the measured maximum value is displayed. If retesting is required, you can write 0 to clear the current maximum value and retest.

	Field Name	Slave Address	Function	Address Hi	Address Lo	Data Hi	Data Lo	CRC	
Write	Query/ Response	01	06	00	47	00	00	39	DF

36. Minimum value of bus voltage

Address: 0x0048

Explanation: Read the minimum value of bus voltage

Operation: ReadWORD/WriteWORD

Bit	Name	Type	Data range	Default	Notes
0-15	Bus voltage(Min)	String	0-65535	Factory value	Read: Amplify the minimum value of bus voltage by 100 times, unsigned, unit:V

Example: Read the minimum bus voltage of 23.80V.

	Field Name	Slave Address	Function	Address Hi	Address Lo	No.of Points Hi	No.of Points Lo	CRC	
Read	Query	01	03	00	48	00	01	04	1C
	Field Name	Slave Address	Function	Bytes	Data Hi	Data Lo	CRC		
	Response	01	03	02	09	4C	BF	E1	

The minimum value of bus voltage can change at any time, only the measured minimum value is displayed. If retesting is required, you can write 0 to clear the current minimum value and retest.

	Field Name	Slave Address	Function	Address Hi	Address Lo	Data Hi	Data Lo	CRC	
Write	Query/ Response	01	06	00	48	00	00	09	DC

37. Driver base address

Address: 0x0066

Explanation: Read/write the base address of the driver.

Operation: ReadWORD/WriteWORD Save by 0x00DC

Bit	Name	Type	Data range	Default	Notes
0-15	Drive Base Address	String	1~65535	Factory value	Read/write: Drive base address, factory default is 1, unsigned.

Example: The default base address for reading a drive is 1.

Read	Field Name	Slave Address	Function	Address Hi	Address Lo	No.of Points Hi	No.of Points Lo	CRC	
	Query	01	03	00	66	00	01	64	15
	Field Name	Slave Address	Function	Bytes	Data Hi	Data Lo	CRC		
	Response	01	03	02	00	01	79	84	

Write base address as 2

Write	Field Name	Slave Address	Function	Address Hi	Address Lo	Data Hi	Data Lo	CRC	
	Query/ Response	01	06	00	66	00	02	E8	14

When the base address is 1, the actual address=the switch address; Base address+ switch address -1=actual address.

38. Motor moving direction setting

Address: 0x006B

Description: Read/write motor moving direction

Operation: ReadWORD/WriteWORD,Save by 0x00DC

Bit	Name	Type	Data range	Default	Notes
0-15	Motor moving direction	String	0-1	Factory value	Read/write: Motor moving direction, factory default is 0 (CW).

Example: Reading the moving direction of the motor

Read	Field Name	Slave Address	Function	Address Hi	Address Lo	No.of Points Hi	No.of Points Lo	CRC	
	Query	01	03	00	6B	00	01	F5	D6
	Field Name	Slave Address	Function	Bytes	Data Hi	Data Lo	CRC		
	Response	01	03	02	00	00	B8	44	

Write the motor moving direction as 1 (CCW)

Write	Field Name	Slave Address	Function	Address Hi	Address Lo	Data Hi	Data Lo	CRC	
	Query/ Response	01	06	00	6B	00	01	39	D6

39. Reverse input port level

Address: 0x006C

Description: Write input port level signal

Operation: WriteWORD, no memory

Bit	Name	Type	Range	Default
15	Restore X7 input state	Bit	0-1	Restore X7 input state to factory value
14	Restore X6 input state	Bit	0-1	Restore X6 input state to factory value
13	Restore X5 input state	Bit	0-1	Restore X5 input state to factory value
12	Restore X4 input state	Bit	0-1	Restore X4 input state to factory value
11	Restore X3 input state	Bit	0-1	Restore X3 input state to factory value
10	Restore X2 input state	Bit	0-1	Restore X2 input state to factory value
9	Restore X1 input state	Bit	0-1	Restore X1 input state to factory value
8	Restore X0 input state	Bit	0-1	Restore X0 input state to factory value
7	Reverse X7 input state	Bit	0-1	Reverse the X7 input current state, write 1 reverse
6	Reverse X6 input state	Bit	0-1	Reverse the X6 input current state, write 1 reverse
5	Reverse X5 input state	Bit	0-1	Reverse the X5 input current state, write 1 reverse
4	Reverse X4 input state	Bit	0-1	Reverse the X4 input current state, write 1 reverse
3	Reverse X3 input state	Bit	0-1	Reverse the X3 input current state, write 1 reverse
2	Reverse X2 input state	Bit	0-1	Reverse the X2 input current state, write 1 reverse
1	Reverse X1 input state	Bit	0-1	Reverse the X1 input current state, write 1 reverse
0	Reverse X0 input state	Bit	0-1	Reverse the X0 input current state, write 1 reverse

Example: Reverse X2 input state

Write	Field Name	Slave Address	Function	Address Hi	Address Lo	Data Hi	Data Lo	CRC	
	Query/ Response	01	06	00	6C	00	04	48	14

40. Motor initial velocity setting

Address: 0x0096

Explanation: Read/write motor initial velocity

Operation: ReadWORD/WriteWORD ,Save by 0x00DC

Bit	Name	Type	Data range	Default	Notes
0-15	Motor initial velocity	String	0-300	Factory value	Read/write: Motor initial velocity. Factory value:50;Unit:rpm

Example: Reading motor initial velocity 50

Read	Field Name	Slave Address	Function	Address Hi	Address Lo	No.of Points Hi	No.of Points Lo	CRC	
	Query	01	03	00	96	00	01	64	26
	Field Name	Slave Address	Function	Bytes	Data Hi	Data Lo	CRC		
	Response	01	03	02	00	32	39	91	

Write motor initial velocity to 0

Write	Field Name	Slave Address	Function	Address Hi	Address Lo	Data Hi	Data Lo	CRC	
	Query/ Response	01	06	00	96	00	00	69	E6

41. Motor stop velocity setting

Address: 0x0097

Explanation: Read/write motor stop velocity

Operation: ReadWORD/WriteWORD ,Save by 0x00DC

Bit	Name	Type	Data range	Default	Notes
0-15	Motor stop velocity	String	0-1000	Factory value	Read/write: Motor stop velocity. Factory value:50;Unit:rpm

Example: Reading motor stop velocity 50

Read	Field Name	Slave Address	Function	Address Hi	Address Lo	No.of Points Hi	No.of Points Lo	CRC	
	Query	01	03	00	97	00	01	35	E6
	Field Name	Slave Address	Function	Bytes	Data Hi	Data Lo	CRC		
	Response	01	03	02	00	32	39	91	

Write motor stop velocity to 0

Write	Field Name	Slave Address	Function	Address Hi	Address Lo	Data Hi	Data Lo	CRC	
	Query/ Response	01	06	00	97	00	00	38	26

42. Motor acceleration time setting

Address: 0x0098

Explanation: Read/write motor acceleration time

Operation: ReadWORD/WriteWORD ,Save by 0x00DC

Bit	Name	Type	Data range	Default	Notes
0-15	Motor accele time	String	0-65535	Factory value	Read/write: Motor accele time. Unit：ms

Example: Reading the default acceleration time

Read	Field Name	Slave Address	Function	Address Hi	Address Lo	No.of Points Hi	No.of Points Lo	CRC	
	Query	01	03	00	98	00	01	05	E5
	Field Name	Slave Address	Function	Bytes	Data Hi	Data Lo	CRC		
	Response	01	03	02	00	78	B8	66	

Write motor acceleration time of 200ms

Write	Field Name	Slave Address	Function	Address Hi	Address Lo	Data Hi	Data Lo	CRC	
	Query/ Response	01	06	00	98	00	C8	09	B3

43. Motor deceleration time setting

Address: 0x0099

Explanation: Read/write motor deceleration time

Operation: ReadWORD/WriteWORD,Save by 0x00DC

Bit	Name	Type	Data range	Default	Notes
0-15	Motor accele time	String	0-65535	Factory value	Read/write: Motor acceleration time. Unit ms

Example: Reading the motor deceleration time

	Field Name	Slave Address	Function	Address Hi	Address Lo	No.of Points Hi	No.of Points Lo	CRC	
Read	Query	01	03	00	99	00	01	54	25
	Field Name	Slave Address	Function	Bytes	Data Hi	Data Lo	CRC		
	Response	01	03	02	00	78	B8	66	

Write motor deceleration time of 300ms

	Field Name	Slave Address	Function	Address Hi	Address Lo	Data Hi	Data Lo	CRC	
Write	Query/ Response	01	06	00	99	01	2C	59	A8

44. Motor moving velocity

Address: 0x009A

Explanation: Read/write motor moving velocity

Operation: ReadWORD/WriteWORD ,Save by 0x00DC

Bit	Name	Type	Data range	Default	Notes
0-15	Motor moving velocity	String	0-10000	Factory value	Read/write: Motor moving velocity. Unit:rpm

Example: Read the motor movement velocity

	Field Name	Slave Address	Function	Address Hi	Address Lo	No.of Points Hi	No.of Points Lo	CRC	
Read	Query	01	03	00	9A	00	01	A4	25
	Field Name	Slave Address	Function	Bytes	Data Hi	Data Lo	CRC		
	Response	01	03	02	01	2C	B8	09	

Write that the motor moves at a velocity of 200 rpm

	Field Name	Slave Address	Function	Address Hi	Address Lo	Data Hi	Data Lo	CRC	
Write	Query/ Response	01	06	00	9A	00	C8	A8	73

45. Software Negative Limit

Address: 0x006E~0x006F

Explanation: Read/write Software Negative Limit.

Operation: ReadDWORD/WriteDWORD,Save by 0x00DC

Bit	Name	Type	Data range	Default	Notes
0-31	Software Negative Limit	String	-2147483648~2147483647	-2147483648	Read/write: software negative limit, factory default -2147483648, meaning cancel

Example: Reading software negative limit

	Field Name	Slave Address	Function	Starting Address Hi	Starting Address Lo	No.of Points Hi	No.of Points Lo	CRC	
Read	Query	01	03	00	6E	00	02	A5	D6
	Field Name	Slave Address	Function	Bytes	Data Hi	Data Lo	Data Hi	Data Lo	CRC
	Response	01	03	04	00	00	80	00	9B F3

Write software negative limit: -10000

	Field Name	Slave Address	Function	Starting Address Hi	Starting Address Lo	No.of Points		Byte Count	Data Hi	Data Lo	Data Hi	Data Lo	CRC	
Write	Query	01	10	00	6E	00	02	04	D8	F0	FF	FF	4F	28
	Field Name	Slave Address	Function	Address Hi	Address Lo	No.of Points		CRC						
	Response	01	10	00	6E	00	02	20	15					

46. Software positive limit

Address: 0x0070~0x0071

Explanation: Read/write software positive limit

Operation: ReadDWORD/WriteDWORD,Save by 0x00DC

Bit	Name	Type	Data range	Default	Notes
0-31	Software positive limit	String	-2147483648~2147483647	2147483647	Read/write: software positive limit, factory default 2147483647, meaning cancel

Example: Reading software positive limit

	Field Name	Slave Address	Function	Starting Address Hi	Starting Address Lo	No.of Points Hi	No.of Points Lo	CRC	
Read	Query	01	03	00	70	00	02	C5	D0
	Field Name	Slave Address	Function	Bytes	Data Hi	Data Lo	Data Hi	Data Lo	CRC
	Response	01	03	04	FF	FF	7F	FF	9A 67

Write software with a positive limit of 10000

	Field Name	Slave Address	Function	Starting Address Hi	Starting Address Lo	No.of Points		Byte Count	Data Hi	Data Lo	Data Hi	Data Lo	CRC	
Write	Query	01	10	00	70	00	02	04	27	10	00	00	FF	FA
	Field Name	Slave Address	Function	Address Hi	Address Lo	No.of Points		CRC						
	Response	01	10	00	70	00	02	40	13					

47. Positive and negative limit setting (hardware)

Address: 0x009B

Description: Read/write Positive and negative limit

Operation: ReadWORD/WriteWORD,Save by 0x00DC

Bit	Name	Type	Range	Notes
15~13	Set or cancel negative limit	Bit	0-1	000 is for cancellation, 001 is for setting
12	Negative limit output signal	Bit	0-1	0:low-level active (PNP), 1:high-level active (NPN).
11~8	Negative limit input port	Bit	0-15	Port numbers, X0~X15 correspond to 0~15 respectively
7~5	Set or cancel positive limit	Bit	0-1	000 is for cancellation, 001 is for setting
4	Positive limit output signal	Bit	0-1	0:low-level active (PNP), 1:high-level active (NPN).
3~0	Positive limit input port	Bit	0-15	Port numbers, X0~X15 correspond to 0~15 respectively

Note: After setting the limit, all the motion commands are carried out within the limit, and the motion stops immediately when it encounters the limit, and only responds to the motion commands that are in the opposite direction of the limit when it is in the limit.

Example: Reading the positive and negative limits

	Field Name	Slave Address	Function	Address Hi	Address Lo	No.of Points Hi	No.of Points Lo	CRC	
Read	Query	01	03	00	9B	00	01	F5	E5
	Field Name	Slave Address	Function	Bytes	Data Hi	Data Lo	CRC		
	Response	01	03	02	00	00	B8	44	

Assuming the sensor is NPN type, set X0 as negative limit and X1 as positive limit input port. According to the description, the result is 0011 0000 0011 0001, converted to hexadecimal, the register value is: 0x3031

	Field Name	Slave Address	Function	Address Hi	Address Lo	Data Hi	Data Lo	CRC	
Write	Query/ Response	01	06	00	9B	30	31	2D	F1

48. Homing setting

Address	Funtion	Bit	Name	Type	Range	Notes
0x009C ReadWORD /WriteWORD memory	Enable input	15~13	Set/Cancel	Bit	0~1	000 is for cancellation, 001 is for setting
		12	Input signal	Bit	0~1	0:low-level active (PNP), 1:high-level active (NPN).
		11~8	Input port	Bit	0~15	Port numbers, X0~X15 correspond to 0~15 respectively
	Homing Input	7~5	Set/Cancel	Bit	0~1	000 is for cancellation, 001 is for setting
		4	Input signal	Bit	0~1	0:low-level active (PNP), 1:high-level active (NPN)
		3~0	Input port	Bit	0~15	Port numbers, X0~X15 correspond to 0~15 respectively
0x009D ReadWORD /WriteWORD memory	Secondary homing setting	15	Direction	Bit	0~1	0:CW, 1:CCW.
		14~0	Pulses	Bit	0~32767	After returning to the origin for the first time, move forward (0) or backward (1) to set the number of pulses, and then reverse or forward to the origin again.
0x00AE ReadWORD /WriteWORD memory	Homing Completion Output Port	15~8	Output port status	Bit	0~1	When the return to the origin is completed, the output port is in a state where 0 is open (output after the return to the origin is completed) and 1 is closed (no output after completion).
		7~0	Output Port	Bit	0~8	The port numbers Y0~Y7 correspond to 1~8, respectively. When they are 0, it means canceling the origin and completing the output function.
0x00C9 WriteWORD No memory	Execute return to home	15	Direction	Bit	0~1	0 is forward, 1 is reverse
		14~6	Velocity	Bit	0~511	Return to the origin velocity, assuming a velocity of 50, the value is 0 0011 0010
		5	Stop method	Bit	0~1	0 represents deceleration stop, 1 represents immediate stop
		4~0	Secondary Velocity	Bit	0~31	The velocity of the second return to the origin is 5 times the set value. If it is 0, there will be no second return to the origin. Maximum 31 * 5=155 turns/minute

Attention: After setting the limit, all motion commands are carried out within the limit. When encountering the limit, the motion immediately stops and only responds to motion commands that are opposite to the limit

Example:

Step 1: Set the homing input (required)

Assuming the sensor is an NPN type, set X2 as the homing input port, and according to the instructions, the binary result is 0000 0000 0011 0010. If converted to hexadecimal, the register value is: 0x0032

Write	Field Name	Slave Address	Function	Address Hi	Address Lo	Data Hi	Data Lo	CRC	
	Query/ Response	01	06	00	9C	00	32	C8	31

Read	Field Name	Slave Address	Function	Address Hi	Address Lo	No.of Points Hi	No.of Points Lo	CRC	
	Query	01	03	00	9C	00	01	44	24
	Field Name	Slave Address	Function	Bytes	Data Hi	Data Lo	CRC		
	Response	01	03	02	00	32	39	91	

Step 2: Setting the distance and direction of the second homing return (optional).

Assuming that after the first return to the home position, it moves clockwise for 500 pulses and then returns to the home position. The binary value is 0 000 0001 1111 0100, which is converted to hexadecimal value 0x01F4.

Write	Field Name	Slave Address	Function	Address Hi	Address Lo	Data Hi	Data Lo	CRC	
	Query/ Response	01	06	00	9D	01	F4	18	33

Read	Field Name	Slave Address	Function	Address Hi	Address Lo	No.of Points Hi	No.of Points Lo	CRC	
	Query	01	03	00	9D	00	01	15	E4
	Field Name	Slave Address	Function	Bytes	Data Hi	Data Lo	CRC		
	Response	01	03	02	01	F4	B8	53	

Step 3: Step 3: Set the output signal after the completion of home return (optional)

Assuming that Y1 is used as the home output port after the home return (Y1 is factory defaulted in place to output, you need to cancel the default function first), close Y1 after the home return is completed, the value is 0x0002

Write	Field Name	Slave Address	Function	Address Hi	Address Lo	Data Hi	Data Lo	CRC	
	Query/ Response	01	06	00	AE	00	02	69	EA

Read	Field Name	Slave Address	Function	Address Hi	Address Lo	No.of Points Hi	No.of Points Lo	CRC	
	Query	01	03	00	AE	00	01	E5	EB
	Field Name	Slave Address	Function	Bytes	Data Hi	Data Lo	CRC		
	Response	01	03	02	00	02	39	85	

Step 4: Set the homing mode (including direction, velocity, stop mode, and secondary homing velocity)

Assuming a CCW return to the home, with a velocity of 200rpm, immediately stops when encountering the home, and a second return to the home velocity of 10 (value) * 5=50 rpm, according to the instructions, the binary value is 1 011001000 1 01010, which is converted to hexadecimal as 0xB22A. (If a limit is set, it will automatically reverse when encountering the limit when returning to the home)

Write	Field Name	Slave Address	Function	Address Hi	Address Lo	Data Hi	Data Lo	CRC	
	Query/ Response	01	06	00	C9	B2	2A	AC	8B

49. Torque mode setting (only applicable to closed-loop systems)

Address	Funtion	Bit	Name	Type	Range	Notes
0x009E ReadWORD /WriteWORD memory	Moment mode	15-8	Collision return to home	Bit	1	Value 1:Indicating the execution of collision back to the home
			Grasping objects	Bit	2	Value 2:Indicates the execution of grasping objects, grasping in the CW direction and releasing in the CCW direction; CCW direction grab, CW direction release
			Constant torque operation	Bit	3	Value 3:Indicating constant torque operation
	Torque level	7-0	Torque level setting	Bit	0-1	There are 256 levels of torque, with 0 minimum and 255 maximum. The motor needs to overcome its own resistance and structural resistance, and the value should not be set too small, otherwise it will cause the motor to not move or the velocity cannot reach the target velocity
0x00CB WriteWORD memory	Execution torque mode	15	Moving direction	Bit	0-1	0:CW, 1 :CCW
		14-1	Offset pulse count	Bit	0-15	When the collision returns to the origin, it indicates how many pulses are offset as the origin after the collision; When releasing an object, it indicates how many pulses the clamp releases when releasing the object. Grasping the object and moving at a constant moment of force are meaningless.
		0	Stop/Move	Bit	0-1	0:stop; 1:move

Example:

Step 1: Set the torque mode and torque size

Assuming a collision is required to return to the home and the torque is level 50, the value obtained from the explanation is: 0x0132

Write	Field Name	Slave Address	Function	Address Hi	Address Lo	Data Hi	Data Lo	CRC	
	Query/ Response	01	06	00	9E	01	32	68	61

Read	Field Name	Slave Address	Function	Address Hi	Address Lo	No.of Points Hi	No.of Points Lo		CRC	
	Query	01	03	00	9E	00	01		E5	E4
	Field Name	Slave Address	Function	Bytes	Data Hi	Data Lo	CRC			
	Response	01	03	02	01	32	38	01		

Step 2: Execute torque mode (including moving direction, offset pulse, and selection of moving and stopping.)

Assuming a clockwise collision with a physical limit and an offset of 500 pulses as the origin, the binary value obtained according to the instructions is: 0 00000 11111010 01, which is converted to a hexadecimal value of 0x03E9

Write	Field Name	Slave Address	Function	Address Hi	Address Lo	Data Hi	Data Lo	CRC	
	Query/ Response	01	06	00	CB	03	E9	39	4A

Explanation: The velocity of grasping objects and colliding back to the origin is the system velocity. When moving with constant torque, the velocity changes based on resistance. When the resistance exceeds the set value, the motor stops, and the resistance drops to the set torque to continue moving. The torque level is set based on resistance. If the resistance is high, the value will increase accordingly. Otherwise, the motor may not have touched the physical limit or grabbed an object and will stop.

50. Control mode setting register

Address: 0x009F

Description: Set the control mode

Operation: ReadWORD/WriteWORD,Save by 0x00DC

Bit	Name	Type	Data range	Default	Notes
0-15	Control mode	String	1-3	Memory value	Read/write: Control mode

1: Double pulse mode 2: Pulse+direction mode 3: Autorun mode

In double pulse mode, X0 (CW) and X1 (CCW) are used as pulse ports, while in pulse direction mode, X0 is the pulse port and X1 is the direction port.

Example: Read default value 3, Autorun mode

Read	Field Name	Slave Address	Function	Address Hi	Address Lo	No.of Points Hi	No.of Points Lo	CRC	
	Query	01	03	00	9F	00	01	B4	24
	Field Name	Slave Address	Function	Bytes	Data Hi	Data Lo	CRC		
	Response	01	03	02	00	03	F8	45	

Write the operation mode as pulse+direction mode

Write	Field Name	Slave Address	Function	Address Hi	Address Lo	Data Hi	Data Lo	CRC	
	Query/ Response	01	06	00	9F	00	02	38	25

51. Output Port Operation

Address	Definition	Bit	Name	Type	Range	Notes
0x00A0 WriteWORD No memory	Close Output Port	15~8	Hold	Bit	0	Hold
		7	Y7	Bit	0-1	Write 1 Closed Y7
		6	Y6	Bit	0-1	Write 1 Closed Y6
		5	Y5	Bit	0-1	Write 1 Closed Y5
		4	Y4	Bit	0-1	Write 1 Closed Y4
		3	Y3	Bit	0-1	Write 1 Closed Y3
		2	Y2	Bit	0-1	Write 1 Closed Y2
		1	Y1	Bit	0-1	Write 1 Closed Y1
		0	Y0	Bit	0-1	Write 1 Closed Y0
0x00A1 WriteWORD No memory	Open Output Port	15~8	Hold	Bit	0	Hold
		7	Y7	Bit	0-1	Write 1 open Y7
		6	Y6	Bit	0-1	Write 1 open Y6
		5	Y5	Bit	0-1	Write 1 open Y5
		4	Y4	Bit	0-1	Write 1 open Y4
		3	Y3	Bit	0-1	Write 1 open Y3
		2	Y2	Bit	0-1	Write 1 open Y2
		1	Y1	Bit	0-1	Write 1 open Y1
		0	Y0	Bit	0-1	Write 1 open Y0
0x00A2 ReadWORD	Read Output Port	15~8	Hold	Bit	0	Hold
		7	Y7	Bit	0-1	1 is Y7 closed, 0 is Y7 open
		6	Y6	Bit	0-1	1 is Y6 closed, 0 is Y6 open
		5	Y5	Bit	0-1	1 is Y5 closed, 0 is Y5 open
		4	Y4	Bit	0-1	1 is Y4 closed, 0 is Y4 open
		3	Y3	Bit	0-1	1 is Y3 closed, 0 is Y3 open
		2	Y2	Bit	0-1	1 is Y2 closed, 0 is Y2 open
		1	Y1	Bit	0-1	1 is Y1 closed, 0 is Y1 open
		0	Y0	Bit	0-1	1 is Y0 closed, 0 is Y0 open
0x00A5 WriteWORD memory	Set/Cancel Alarm Output	15~8	Output port status during alarm	Bit	0-1	0 is open, 1 is closed
		7~0	Port number	Bit	0-8	Port number, Y0~Y7 corresponds to 1~8 respectively;0: Cancel alarm output
0x00A6 WriteWORD memory	Set/Cancel Move Output	15~8	Output port status during operation	Bit	0-1	0 is open, 1 is closed
		7~0	Port number	Bit	0-8	Port number, Y0~Y7 corresponds to 1~8 respectively;0: Cancel Move Output
0x00A7 WriteWORD memory	Set/cancel in place output	15~8	Output port status when in place	Bit	0-1	0 is open, 1 is closed
		7~0	Port number	Bit	0-8	Port number, Y0~Y7 corresponds to 1~8 respectively;0: Cancel in place output

Note: When opening the loop, the default Y0 is the alarm output; Y1 is the operating output.

When in a closed loop, default Y0 is the alarm output; Y1 is the output in place.

If you need to redefine, turn on or off Y0 or Y1, you need to first cancel the default output function.

Example 1:

Close output ports Y0, Y1, Y6, and then open all output ports.

Step 1: Cancel the default functions of Y0 and Y1.

Cancel alarm output, cancel move/in place output (when open loop, cancel operation output, when closed loop, cancel in place output)

	Field Name	Slave Address	Function	Address Hi	Address Lo	Data Hi	Data Lo	CRC	
Write	Query/ Response	01	06	00	A5 (Alarm output)	00	00	99	E9
	Query/ Response	01	06	00	A6 (Moving output)	00	00	69	E9
	Query/ Response	01	06	00	A7 (In place output)	00	00	38	29

Step 2: Close Y0, Y1, Y6, binary value is 1000011, convert to hexadecimal 0x0043

	Field Name	Slave Address	Function	Address Hi	Address Lo	Data Hi	Data Lo	CRC	
Write	Query/ Response	01	06	00	A0	00	43	C8	19

Step 3: Close all output ports, binary value 11111111, convert to hexadecimal 0x00FF

	Field Name	Slave Address	Function	Address Hi	Address Lo	Data Hi	Data Lo	CRC	
Write	Query/ Response	01	06	00	A1	00	FF	98	68

Read output port status

	Field Name	Slave Address	Function	Address Hi	Address Lo	No.of Points Hi	No.of Points Lo		CRC	
Read	Query	01	03	00	A2	00	01		25	E8
	Field Name	Slave Address	Function	Bytes	Data Hi	Data Lo	CRC			
	Response	01	03	02	00	00	B8	44		

Example 2:

Set Y0 as the moving output, always open when moving, and always close when stopping.

Set Y1 as the alarm output, with the alarm constantly on and the drive normally off .

Step 1: Cancel the default functions of Y0 and Y1.

	Field Name	Slave Address	Function	Address Hi	Address Lo	Data Hi	Data Lo	CRC	
Write	Query/ Response	01	06	00	A5 (Alarm output)	00	00	99	E9
	Query/ Response	01	06	00	A6 (Moving output)	00	00	69	E9
	Query/ Response	01	06	00	A7 (In place output)	00	00	38	29

Step 2: Set the Y0 and Y1 functions.

Set Y0 as the moving output, always open when moving.

	Field Name	Slave Address	Function	Address Hi	Address Lo	Data Hi	Data Lo	CRC	
Write	Query/ Response	01	06	00	A6	01	01	C8	19

52. Alarm related operations

Address	Definition	Bit	Name	Type	Range	Notes
0x00A3 ReadWORD Every four digits represent an alarm message, which can be recorded four times when powered on, with the same alarm code.	Historical alarm information	15-13	Third historical alarm information	Bit	0	normal
				Bit	1	Motor phase overcurrent
				Bit	2	Supply voltage too high
		11-8	Second historical alarm information	Bit	3	Supply voltage too low
				Bit	4	Motor A phase open circuit
				Bit	5	Motor B phase open circuit
		7-4	First historical alarm information	Bit	6	Other alarms or position out of tolerance
				Bit	7	Internal 24V voltage offset
				Bit	8	AI voltage error
	Current alarm status	3~0	Current alarm information	Bit	9	BI voltage error
				Bit	10	Encoder error
0x00A4 WriteWORD	Clear Alarm status	0-15	Clear alarm	Bit	0	Clear alarm status, value 0

Example: Reading alarm status

	Field Name	Slave Address	Function	Address Hi	Address Lo	No.of Points Hi	No.of Points Lo		CRC	
Read	Query	01	03	00	A3	00	01		74	28
	Field Name	Slave Address	Function	Bytes	Data Hi	Data Lo	CRC			
	Response	01	03	02	00	03	F8	45		

Clear alarm status

	Field Name	Slave Address	Function	Address Hi	Address Lo	Data Hi	Data Lo	CRC	
Write	Query/ Response	01	06	00	A4	00	00	04	29

53. Position reminder register

Address	Operation	Bit	Name	Type	Range	Default	Flag Bit	Notes
0x00A8~0x00A9	ReadDWORD WriteDWORD Memory	0-31	Position reminder register	String	-2147483648 ~2147483647	Memory value	X11	32nd Bit=0, ≥ set value alert. 32nd Bit=1, < set value alert. The last 31 Bits indicate the number of symbols in 31 digits..
0x00C2~0x00C3							X17	
0x00C4~0x00C5							X18	
0x00C6~0x00C7							X19	

Example: X11: Current position ≥ -500 warning

	Field Name	Slave Address	Function	Starting Address Hi	Starting Address Lo	No.of Points		Byte Count	Data Hi	Data Lo	Data Hi	Data Lo	CRC	
Write	Query	01	10	00	A8	00	02	04	FE	0C	7F	FF	69	EA
	Field Name	Slave Address	Function	Address Hi	Address Lo	No.of Points		CRC						
	Response	01	10	00	A8	00	02	C0	28					

Example: X17：Current position < 5000 warning

	Field Name	Slave Address	Function	Starting Address Hi	Starting Address Lo	No.of Points		Byte Count	Data Hi	Data Lo	Data Hi	Data Lo	CRC	
Write	Query	01	10	00	C2	00	02	04	13	88	80	00	9B	48
	Field Name	Slave Address	Function	Address Hi	Address Lo	No.of Points		CRC						
	Response	01	10	00	C2	00	02	E0	34					

54. Setting, calling, and executing table data

Address	Definition	Bit	Name	Type	Range	Notes
0x00AA WriteWORD memory	Table size	0~15	Number of data to be stored in the table	Bit	1-2048	Read/write: Number of data stored in the table
0x00AB WriteWORD memory	Table pointer	0~15	Where table data execution begins	Bit	0-4095	Read/write: Point to the data location where the table is stored. The first data position pointer is 0, one data occupies two registers, and so on
0x00AC WriteWORD memory	Table Start Address	0~15	Start address for table data storage	Bit	300-2048	Read/write: The starting position for storing table data. Table data format is 32-Bit
0x00DD WriteWORD	Execute Table Data	15	Absolute or relative position	Bit	0-1	0:Absolute position, 1:Relative position
		14~12	Algorithm for executing table data	Bit	0-1	0:Addition, 1:Subtraction
		11~0	Algorithmic constants for tabular data	Bit	0-4095	The current table pointer value is added to or subtracted from this constant for the data position that needs to be executed for the next time.

Example:

Step 1: Confirm the table data

No.	Address	Data	No.	Address	Data	No.	Address	Data	No.	Address	Data
0	500~501	25535	6	512~513	12345	12	524~525	1345	18	536~537	2345
1	502~503	-13575	7	514~515	-600	13	526~527	-6000	19	538~539	-5600
2	504~505	12352	8	516~517	5635	14	528~529	56315	20	540~541	8635
3	506~507	-11231	9	518~519	-3565	15	530~531	-35615	21	542~543	-1365
4	508~509	24563	10	520~521	25635	16	532~533	2565	22	544~545	15635
5	510~511	-18963	11	522~523	-25635	17	534~535	-2535	23	546~547	-5635

As in the above table, assuming that there are a total of 24 positions to be executed, if we execute through the ordinary move command, the program will be more complex and error prone, but if we build a form in advance and call the form data during the move, it will be very flexible and not easy to make mistakes.

Note: Form data storage address must be greater than or equal to 300, that is, it needs to be stored in the programming area, if there are other commands in the programming area, the data can not overlap. For example, there are commands in the programming area itself, occupying the address 300~400, at this time we can set the form start address to 500.

Step 2: Send the table data to the specified location.

Here we can send them one by one, such as：

500~501: 01 10 01 F4 00 02 04 63 BF 00 00 DF 28 (25535)

502-503: 01 10 01 F4 00 02 04 CA F9 FF FF 1E D1 (-13575)

It can also be sent at once, but please note that the entire instruction should not exceed 200 bytes, as follows:

01 10 01 F4 00 30 60 63 BF 00 00 CA F9 FF FF 30 40 00 00 D4 21 FF FF 5F F3 00 00 B5 ED FF 30 39 00 00 FD A8 FF 16 03 00 F2 13 FF 64 23 00 9B DD FF 05 41 00 00 E8 90 FF DB FB 00 00 74 E1 FF 0A 05 00 00 00 F6 19 FF 09 29 00 EA 20 FF 21 BB 00 00 00 FA AB FF FF 3D 13 00 00 E9 FD FF 14 91

After sending, you need to send save instruction to save the data.

(The red marking is the data format, the green one is the check digit, the black one in the center is the data, one data occupies two registers, i.e. 4 bytes for one data.)

Step 3: Setting the number of table data

The example totals 24 positions and the table size is 24, send the command as follows:

01 06 00 AA 00 18 A9 E0

Step 4: Setting the Table Pointer

Assuming that you now need to start execution from the position of serial number 21 in the table (-1365), the value of the table pointer is 21, and you send the instruction as follows:

01 06 00 AB 00 15 39 E5

Step 5: etting the table start address

Table start address refers to the location where the table storage address is located in the programming area, you need to subtract the programming area start address 300 from the actual address; assuming that the first set of data storage address of the table is 500~501, then the table start address will be 500-300=200.

Note: The table data address cannot overlap with the programming command address. As follows:

01 06 00 AC 00 C8 48 7D

Step 6: Execute Table Data

Assuming that the data in the table is an absolute position, the pointer of the previous data table is reduced by 1 after each execution (e.g., the execution starts from serial number 22, and the data in serial number 21 is executed again). That is, the table pointer constant is 1. Send the instruction as follows:

01 06 00 DD 10 01 D5 F0

55. Set emergency stop input port

Address	Name	Bit	Definition	Type	Range	Notes
0x00AD WriteWORD /ReadWORD memory	Hold	15	Hold	Bit	0-1	Reserved, value meaningless, constant 0
	Emergency stop output port output method	14	Normally open/ normally closed	Bit	0-1	0: Closed; 1:Open
	Emergency stop feedback output portt	13~10	Output Port	Bit	0-8	Port No. 0:Cancel Y0~Y7 corresponds to 1~8 in turn
	Group 1 Emergency Stop Input Level	9	Effective level	Bit	0-1	0: Low level 1: High level
	Group 1 Emergency Stop Inputs	8~5	Input Port	Bit	0-8	Group 1 Emergency Stop Inputs X0~X7 correspond to 1~8 in turn,0:Cancel
	Group 2 Emergency Stop Input Level	4	Effective level	Bit	0-1	0: Low level 1: High level
	Group 2 Emergency Stop Inputs	3~0	Input Port	Bit	0-8	Group 2 Emergency Stop Inputs X0~X7 correspond to 1~8 in turn,0:Cancel

Example: Set X3 low for emergency stop. X4 high for emergency stop; open Y2 for emergency stop.

The binary value is 1 0011 0 0100 1 0101, i.e. 0x4C95

Write	Field Name	Slave Address	Function	Address Hi	Address Lo	Data Hi	Data Lo	CRC	
	Query/ Response	01	06	00	AD	4C	95	EC	84

Read	Field Name	Slave Address	Function	Address Hi	Address Lo	No.of Points Hi	No.of Points Lo	CRC	
	Query	01	03	00	AD	00	01	15	EB
	Field Name	Slave Address	Function	Bytes	Data Hi	Data Lo	CRC		
	Response	01	03	02	4C	95	4C	EB	

56. Set velocity switch port

Address	Name	Bit	Definition	Type	Range	Notes
① 0x00AF ② 0x00B0 ③ 0x00B1 ④ 0x00B2 WriteWORD /ReadWORD memory	Input port number	15~12	Port number	Bit	0~15	X0~X14 correspond to numbers 1 to 15; 0:Cancel
	Trigger methods	11	Trigger methods	Bit	0~1	0:Level, 1:Edge
	Trigger signal	10	Trigger signal	Bit	0~1	0: Low Level/Falling Edge 1: High Level/Rising Edge
	Effective direction	9~8	Direction	Bit	0~2	0：CW&CCW; 1:CW; 2:CCW
	Switching velocity	7~0	Velocity	Bit	0~255	Actual value = Set value * 5;Unit:rpm
0x00B3	0x00AF Port Number Highest Bit	15	Port number of 0x00AF	Bit	0~1	Synthesize port number with 0x00AF high 4 Bits, corresponding to X0~X30
	Replace the velocity of 0x00AF 7-0 Bits	14~0	Velocity of 0x00AF	Bit	0~5000	Read/write: 0x00AF moving velocity,unit: rpm
0x00B4	0x00B0 Port number highest Bit	15	Port number of 0x00B0	Bit	0~1	Synthesize port number with 0x00B0 high 4 Bits, corresponding to X0~X30
	Replace the velocity of 0x00B0 7-0 Bits	14~0	Velocity of 0x00B0	Bit	0~5000	Read/write: 0x00B0 moving velocity,unit: rpm
0x00B5	0x00B1 Port Number Highest Bit	15	Port number of 0x00B1	Bit	0~1	Synthesize port number with 0x00B1 high 4 Bits, corresponding to X0~X30
	Replace the velocity of 0x00B1 7-0 Bits	14~0	Velocity of 0x00B1	Bit	0~5000	Read/write: 0x00B1 moving velocity,unit: rpm
0x00B8	0x00B2 Port Number Highest Bit	15	Port No. of 0x00B2	Bit	0~1	Synthesize port number with 0x00B2 high 4 Bits, corresponding to X0~X30
	Replace the velocity of 0x00B2 7-0 Bits	14~0	Velocity of 0x00B2	Bit	0~5000	Read/write: 0x00B2 moving velocity,unit: rpm

Notes:

From 0x00AF~0x00B2,all these 4 registers can set the fast conversion velocity through the input port, and 4 ports can be set at the same time, but when executing, pay attention to the priority issue, the priority of the low address is high. I.e., when the register of low address is executed, the velocity of high address can not be executed.

From 0x00AF~0x00B2,these 4 registers have limitation because of the velocity set in the low 7 Bits, and the port number set in the high 4 Bits is only 16, which can't satisfy the number of status registers corresponding to register 0x0006, so additionally set the highest Bits of the 4 registers from 0x00B3~0x00B5 and 0x00B8 as the highest Bits of the port number for expanding the port number, and the low 14 Bits are used to extend the transformed velocity range.

Example 1: When X0 is set to have an input, the bi-directional velocity changes to 50 rpm.

The binary value is then 1 0 1 00 0000 1010, i.e. 0x140A

	Field Name	Slave Address	Function	Address Hi	Address Lo	Data Hi	Data Lo	CRC	
Write	Query/ Response	01	06	00	AF	14	0A	36	EC

Assuming that the bi-directional velocity needs to be changed to 47 revolutions/minute, which cannot be realized by 0x00AF instruction alone, at this time we can modify his corresponding velocity register 0x00B3

	Field Name	Slave Address	Function	Address Hi	Address Lo	Data Hi	Data Lo	CRC	
Write	Query/ Response	01	06	00	B3	00	2F	39	F1

Example 2: When X17 receives a rising edge, the velocity in CCW direction is changed to 1000 rpm. The binary value is

0010 1110 0000 1010, i.e. 0x2E 0A

X17>X14, 1000>255, need to borrow the B4 register, the highest Bit is 1. The lower 14 Bits of the value of 1000, that is, 0x8 3E8

	Field Name	Slave Address	Function	Address Hi	Address Lo	Data Hi	Data Lo	CRC	
Write	Query/ Response	01	06	00	B0	2E	0A	15	8A
	Query/ Response	01	06	00	B4	83	E8	A8	92

Description: Priority: AF>B0>B1>B2

57. Break positioning(Relative position set by the received signal movement while moving)

Address	Name	Bit	Definition	Type	Range	Notes
0x00B6~0x00B7 WriteWORD /ReadWORD memory	Port number	31~28	Set triggering input port	Bit	0-8	X0~X14 correspond to 1~15 in turn 0:Cancel
	Trigger method	27	Set triggering methods	Bit	0-1	0:Level; 1:Edge
	Input signal	26	Set valid input signal	Bit	0-1	0: Low Level/Falling Edge 1: High Level/Rising Edge
	Valid direction	25~24	Set valid direction	Bit	0-2	0：CW&CCW; 1:CW; 2:CCW
	Pulse count	23~0	Number of pulses moving after the input port is triggered	Bit	0-16777215	Number of pulses

Explanation: After this instruction is set, it must be in operation to take effect. When the motor is stationary, the setting port is triggered and the motor will not move.

Example: When rotating CW, an input is detected for X0, it stops after moving 200 pulses, and CCW is invalid.

Then the binary value is 1 0 1 01 0000 0000 0000 0000 1100 1000, converted to a hexadecimal value of 0x1500 00C8

Write	Field Name	Slave Address	Function	Starting Address Hi	Starting Address Lo	No.of Points		Byte Count	Data Hi	Data Lo	Data Hi	Data Lo	CRC	
	Query	01	10	00	B6	00	02	04	00	C8	15	00	F7	9F
	Field Name	Slave Address	Function	Address Hi	Address Lo	No.of Points		CRC						
	Response	01	10	00	B6	00	02	A0	2E					

Read	Field Name	Slave Address	Function	Starting Address Hi	Starting Address Lo	No.of Points Hi	No.of Points Lo	CRC	
	Query	01	03	00	B6	00	02	25	ED
	Field Name	Slave Address	Function	Bytes	Data Hi	Data Lo	Data Hi	Data Lo	CRC
	Response	01	03	04	00	C8	15	00	75 5D

58. Start moving after triggering the specified input (Velocity mode)

Address	Name	Bit	Definition	Type	Range	Notes
0x00BA~0x00BB WriteWORD /ReadWORD memory	Input Port	31~28	Group 4 Move Trigger Ports	Bit	0-15	Port numbers, X0 to X7 correspond to numbers 1 to 8, 0: Cancel
	Effective level	27	Group 4 Move Trigger Level	Bit	0-1	0:Low-level; 1:High-level.
	Moving direction	26	Group 4 Move Trigger Direction	Bit	0-1	0:CW, 1:CCW.
	Hold	25~24	Hold	Bit	0	Hold
	Input Port	23~20	Group 3 Move Trigger Ports	Bit	0-15	Port numbers, X0 to X7 correspond to numbers 1 to 8, 0: Cancel
	Effective level	19	Group 3 Move Trigger Level	Bit	0-1	0:Low-level; 1:High-level.
	Moving direction	18	Group 3 Move Trigger Direction	Bit	0-1	0:CW, 1:CCW.
	Hold	17~16	Hold	Bit	0	Hold
	Input Port	15~12	Group 2 Move Trigger Ports	Bit	0-15	Port numbers, X0 to X7 correspond to numbers 1 to 8, 0: Cancel
	Effective level	11	Group 2 Move Trigger Level	Bit	0-1	0:Low-level; 1:High-level.
	Moving direction	10	Group 2 Move Trigger Direction	Bit	0-1	0:CW, 1:CCW.
	Hold	9~8	Hold	Bit	0	Hold
	Input Port	7~4	Group 1 Move Trigger Ports	Bit	0-15	Port numbers, X0 to X7 correspond to numbers 1 to 8, 0: Cancel
	Effective level	3	Group 1 Move Trigger Level	Bit	0-1	0:Low-level; 1:High-level.
	Moving direction	2	Group 1 Move Trigger Direction	Bit	0-1	0:CW, 1:CCW.
	Hold	1~0	Hold	Bit	0	Hold

Example:

Configure X0 to move in the CW direction when high and X1 to move in the CCW direction when high.

The binary value is then 10110000011000 , i.e. the value is 0x0000 2C18

Write	Field Name	Slave Address	Function	Starting Address Hi	Starting Address Lo	No.of Points		Byte Count	Data Hi	Data Lo	Data Hi	Data Lo	CRC
	Query	01	10	00	BA	00	02	04	2C	18	00	00	F0 33
	Field Name	Slave Address	Function	Address Hi	Address Lo	No.of Points		CRC					
	Response	01	10	00	BA	00	02	60	2D				

Read	Field Name	Slave Address	Function	Starting Address Hi	Starting Address Lo	No.of Points Hi	No.of Points Lo	CRC
	Query	01	03	00	BA	00	02	E5 EE
	Field Name	Slave Address	Function	Bytes	Data Hi	Data Lo	Data Hi	Data Lo CRC
	Response	01	03	04	2C	18	00	00 72 A4

59. Rotor position offset (closed-loop)

Address: 0x00BE

Description: Set rotor position offset for synchronizing rotor position and command position

Operation: ReadWORD/WriteWORD,Save by 0x00DC

Bit	Name	Type	Data range	Default	Notes
0-15	Rotor position offset	String	-80~80	Memory value	Read/write: Rotor position offset, unit:pulse

Explanation: The driver will automatically set a motor zero point to exert the maximum torque of the motor, but in some external force situations, the optimal value cannot be achieved. In this case, it is necessary to adjust the zero point position through the rotor position offset value to achieve the best effect.

Example: Reading the rotor position offset value of 0.

Read	Field Name	Slave Address	Function	Address Hi	Address Lo	No.of Points Hi	No.of Points Lo	CRC
	Query	01	03	00	BE	00	01	E4 2E
	Field Name	Slave Address	Function	Bytes	Data Hi	Data Lo	CRC	
	Response	01	03	02	00	00	B8	44

Set the rotor position offset value -5, which is 0xFFFB

Write	Field Name	Slave Address	Function	Address Hi	Address Lo	Data Hi	Data Lo	CRC
	Query/ Response	01	06	00	BE	FF	FB	E9 9D

60. Position proportion gain(KF for closed loop)

Address: 0x00BF

Description: Set the position loop proportion coefficient

Operation: ReadWORD/WriteWORD, Save by 0x00DC

Bit	Name	Type	Data range	Default	Notes
0-15	Proportion gain	String	0-65535	Memory value	Read/write: Magnify the position proportion gain by 100x

Notes: The larger the value, the better the following performance. Setting too large is prone to jitter and overshooting

Example: The position proportion gain is 100, and the actual value is 1.

Read	Field Name	Slave Address	Function	Address Hi	Address Lo	No.of Points Hi	No.of Points Lo	CRC
	Query	01	03	00	BF	00	01	B5 EE
	Field Name	Slave Address	Function	Bytes	Data Hi	Data Lo	CRC	
	Response	01	03	02	00	64	B9	AF

Set the position proportion gain to 1000, and the actual value is 10. The value is 0x03E8

Write	Field Name	Slave Address	Function	Address Hi	Address Lo	Data Hi	Data Lo	CRC
	Query/ Response	01	06	00	BF	03	E8	B8 90

61. Position integral gain (KI for closed-loop)

Address: 0x0029

Explanation: Set the position integral gain

Operation: ReadWORD/WriteWORD, Save by 0x00DC

Bit	Name	Type	Data range	Default	Notes
0-15	Integral gain	String	0-65535	Memory value	Read/write: Magnify the position integral gain by 100x

Explanation: The larger the setting value, the smaller the position hysteresis, too large is prone to oscillate

Example: Reading the position integral gain 100, the actual value is 1.

Read	Field Name	Slave Address	Function	Address Hi	Address Lo	No.of Points Hi	No.of Points Lo	CRC	
	Query	01	03	00	29	00	01	55	C2
	Field Name	Slave Address	Function	Bytes	Data Hi	Data Lo	CRC		
	Response	01	03	02	00	64	B9	AF	

Set the position integral gain 10, and the actual value is 0.1, The value is 0x000A

Write	Field Name	Slave Address	Function	Address Hi	Address Lo	Data Hi	Data Lo	CRC	
	Query/ Response	01	06	00	29	00	0A	D8	05

62. Velocity mode proportion gain

Address: 0x00C0

Description: Set the velocity mode proportion gain

Operation: ReadWORD/WriteWORD, Save by 0x00DC

Bit	Name	Type	Data range	Default	Notes
0-15	Velocity mode proportion gain	String	0-65535	Memory value	Read/write: Magnify the velocity mode proportion gain by 100x

The larger the load inertia, the larger the set value. Under the condition that the system does not generate oscillation, try to set a larger value.

Example: The reading velocity mode proportion gain is 100, and the actual value is 1.

Read	Field Name	Slave Address	Function	Address Hi	Address Lo	No.of Points Hi	No.of Points Lo	CRC	
	Query	01	03	00	C0	00	01	84	36
	Field Name	Slave Address	Function	Bytes	Data Hi	Data Lo	CRC		
	Response	01	03	02	00	64	B9	AF	

Set the velocity mode proportion gain to 500, and the actual value is 5. The value is 0x01F4

Write	Field Name	Slave Address	Function	Address Hi	Address Lo	Data Hi	Data Lo	CRC	
	Query/ Response	01	06	00	C0	01	F4	89	E1

63. Velocity mode integral gain

Address: 0x00C1

Explanation: Set the velocity mode integral gain

Operation: ReadWORD/WriteWORD, Save by 0x00DC

Bit	Name	Type	Data range	Default	Notes
0-15	Velocity mode integral gain	String	0-65535	Memory value	Read/write: Magnify the velocity mode integral gain by 100x

Explanation: The larger the load inertia, the larger the set value. Under the condition that the system does not generate oscillation, try to set a smaller value.

Example: Reading the velocity mode integral gain is 1000, the actual value is 10.

Read	Field Name	Slave Address	Function	Address Hi	Address Lo	No.of Points Hi	No.of Points Lo	CRC	
	Query	01	03	00	C1	00	01	D5	F6
	Field Name	Slave Address	Function	Bytes	Data Hi	Data Lo	CRC		
	Response	01	03	02	03	E8	B8	FA	

Set the velocity mode integral gain to 100, and the actual value is 1. The value is 0x0064

Write	Field Name	Slave Address	Function	Address Hi	Address Lo	Data Hi	Data Lo	CRC	
	Query/ Response	01	06	00	C1	00	64	D9	DD

64. Move command

All move command can be executed separately without the need for combination

① Move & Stop (No target position)

Address: 0x00C8

Description: Motor start move or stop move

Operation: WriteWORD, no memory

Bit	Name	Type	Data range	Notes
0-15	Motor start or stop	String	0,1,256,257	0:Decele stop, 1:CW moving, 256:Emergency stop, 257:CCW moving

Example: Start motor moving ccw

Write	Field Name	Slave Address	Function	Address Hi	Address Lo	Data Hi	Data Lo	CRC	
	Query/ Response	01	06	00	C8	01	01	C8	64

② Jog (no target position)

Address: 0x00CA

Description: Set motor jog stop and start, as well as jog velocity and direction

Operation: WriteWORD, no memory

Bit	Name	Type	Range	Notes
15	Jog direction	Bit	0-1	0:CW, 1:CCW
14~6	Jog velocity	Bit	0-511	Jog velocity
5	Jog stop mode	Bit	0-1	0 :Deceleration stop, 1:Immediate stop
4~1	Hold	Bit	0	Meaningless
0	Move/stop	Bit	0-1	0 is stop, 1 is move

Example: Set the motor to jog in the CW direction at a velocity of 50rpm. According to the instructions, the result is 0000 1100 1000 0001. If converted to hexadecimal, the register value is: 0x0C81

Write	Field Name	Slave Address	Function	Address Hi	Address Lo	Data Hi	Data Lo	CRC	
	Query/ Response	01	06	00	CA	0C	81	6C	94

③ Move Set Time (No target position)

Address: 0x00CC~0x00CD

Description: Moves the specified time and starts moving when data is written to the register.

Operation: WriteDWORD, no memory

Bit	Name	Type	Data range	Notes
0-31	Move Set Time	String	-2147483648~2147483647	Write: Move Set Time;CW: Positive value CCW:Negative value

Example: Set the motor to move in reverse for 6400ms. The value is -6400ms

Write	Field Name	Slave Address	Function	Starting Address Hi	Starting Address Lo	No.of Points		Byte Count	Data Hi	Data Lo	Data Hi	Data Lo	CRC	
	Query	01	10	00	CC	00	02	04	E7	00	FF	FF	C8	AE
	Field Name	Slave Address	Function	Address Hi	Address Lo	No.of Points		CRC						
	Response	01	10	00	CC	00	02	81	F7					

④ Relative motion (In-position)

Address: 0x00CE~0x00CF

Description: Move the specified number of pulses

Operation: WriteDWORD, no memory

Bit	Name	Type	Data range	Notes
0-31	Relative motion	String	-2147483648~2147483647	Write: Relative motion; CW: Positive value CCW:Negative value

Example: 10,000 pulses CCW. The value is -10000

Write	Field Name	Slave Address	Function	Starting Address Hi	Starting Address Lo	No.of Points		Byte Count	Data Hi	Data Lo	Data Hi	Data Lo	CRC	
	Query	01	10	00	CE	00	02	04	D8	F0	FF	FF	45	50
	Field Name	Slave Address	Function	Address Hi	Address Lo	No.of Points		CRC						
	Response	01	10	00	CE	00	02	20	37					

⑤ Relative motion (Any position)

Address: 0x00DE~0x00DF

Description: Move the specified number of pulses. Forcibly end other move commands

Operation: WriteDWORD, no memory

Bit	Name	Type	Data range	Notes
0-31	Relative motion	String	-2147483648~2147483647	Write: Relative motion; CW: Positive value CCW:Negative value

Example: The writing motor moves 5000 pulses clockwise from its current position. Value is 5000

	Field Name	Slave Address	Function	Starting Address Hi	Starting Address Lo	No.of Points		Byte Count	Data Hi	Data Lo	Data Hi	Data Lo	CRC	
Write	Query	01	10	00	DE	00	02	04	13	88	00	00	FB	D1
	Field Name	Slave Address	Function	Address Hi	Address Lo	No.of Points		CRC						
	Response	01	10	00	DE	00	02	21	F2					

⑥ Absolute motion (In-position)

Address: 0x00D0~0x00D1

Description: The motor moves to the specified position (Relative to position 0)

Operation: WriteDWORD, no memory

Bit	Name	Type	Data range	Notes
0-31	Absolute motion	String	-2147483648~2147483647	Write: Absolute motion; CW: Positive value CCW:Negative value

Example: Moving to absolute position 10000

	Field Name	Slave Address	Function	Starting Address Hi	Starting Address Lo	No.of Points		Byte Count	Data Hi	Data Lo	Data Hi	Data Lo	CRC	
Write	Query	01	10	00	D0	00	02	04	27	10	00	00	F5	82
	Field Name	Slave Address	Function	Address Hi	Address Lo	No.of Points		CRC						
	Response	01	10	00	D0	00	02	40	31					

⑦ Absolute motion (Any position)

Address: 0x00E8~0x00E9

Description: The motor movs to the specified position (Relative to position 0) , Forcibly end other move commands

peration: WriteDWORD, no memory

Bit	Name	Type	Data range	Notes
0-31	Absolute motion	String	-2147483648~2147483647	Write: Absolute motion; CW: Positive value CCW:Negative value

Example: Moving to absolute position -8000

	Field Name	Slave Address	Function	Starting Address Hi	Starting Address Lo	No.of Points		Byte Count	Data Hi	Data Lo	Data Hi	Data Lo	CRC	
Write	Query	01	10	00	E8	00	02	04	E0	C0	FF	FF	CA	0D
	Field Name	Slave Address	Function	Address Hi	Address Lo	No.of Points		CRC						
	Response	01	10	00	E8	00	02	C1	FC					

65. Set the current absolute position

Address: 0x00D2~0x00D3

Description: Set the current motor absolute position offset to the set value (Relative to position 0)

Operation: WriteDWORD, no memory

Bit	Name	Type	Data range	Notes
0-31	Set the current absolute position	String	-2147483648~2147483647	Set the current motor position to offset to the set value (Relative to position 0).

Example: Set the current absolute position of the motor to 1000. The value is 1000.

	Field Name	Slave Address	Function	Starting Address Hi	Starting Address Lo	No.of Points		Byte Count	Data Hi	Data Lo	Data Hi	Data Lo	CRC	
Write	Query	01	10	00	D2	00	02	04	03	E8	00	00	FF	5A
	Field Name	Slave Address	Function	Address Hi	Address Lo	No.of Points		CRC						
	Response	01	10	00	D2	00	02	E1	F1					

66. Disable/Enable/ Driver restart

Address: 0x00D4

Description: Set drive enable or offline

Operation: WriteWORD, no memory

Bit	Name	Type	Range	Notes
15-8	Driver restart	Bit	0-1	Write 1 Drive Reboot
7-0	Disable /Enable	Bit	0-1	0:Motor enable, 1:Release motor

Example: Restart the drive, value is: 0x0100

Write	Field Name	Slave Address	Function	Address Hi	Address Lo	Data Hi	Data Lo	CRC	
	Query/ Response	01	06	00	D4	01	00	C8	62

Unable to return data due to drive restart.

67. Execute Programming Command

Address: 0x00DB

Description: Execute or stop executing programming area commands

Operation: WriteWORD, no memory

Bit	Name	Type	Data range	Notes
0-15	Execute programming commands	String	0-1	1:Execution, 0:Stop execution

Example: Executing programming instructions in the programming area

Write	Field Name	Slave Address	Function	Address Hi	Address Lo	Data Hi	Data Lo	CRC	
	Query/ Response	01	06	00	DB	00	01	38	31

68. Save command register

Address: 0x00DC

Description: Save programming commands or save current parameters

Operation: WriteWORD, no memory

Bit	Name	Type	Data range	Notes
0-15	Save Command	String	0-1	0: Restore Factory Settings;1: Save

Notes:

1. Restore the factory has a life limit of up to 100,000 times, erase the motor output shutdown 0.2s when clearing
2. If the original address contains data when saving, the original data will be overwritten automatically.
3. Memory registers can be saved

Example: Save Command

Write	Field Name	Slave Address	Function	Address Hi	Address Lo	Data Hi	Data Lo	CRC	
	Query/ Response	01	06	00	DC	00	01	89	F0