DP3SL series Open-Loop RS485 Stepper Driver

User Manual

Wuxi Xinje Electronic Co., Ltd

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XINJE

DP3SL Series Open-Loop RS485 Stepper Driver User Manual

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Basic Description

- Thank you for purchasing the Xinje DP3SL series stepper drive. Please read this product manual carefully before proceeding with any related operations.
- This manual mainly provides users with relevant guidance and instructions on how to correctly use and maintain stepper drivers. The manual covers the functions, usage methods, installation, and maintenance of stepper drivers.
- The content described in the manual is only applicable to the DP3SL series stepper drive products of Xinje Company.

User Notice

This manual is applicable to the following personnel:

- Installation personnel for stepper drivers
- Engineering and technical personnel (electrical engineers, electrical operators, etc.)
- Designers

Before operating or debugging the stepper drive, please read the safety precautions section of this manual carefully.

Responsibility Statement

- Although the content in the manual has been carefully checked, errors are inevitable, and we cannot guarantee complete consistency.
- We will regularly review the content of the manual and make corrections in subsequent versions. We welcome valuable feedback.
- The content described in the manual is subject to change without prior notice.

Contact us

If you have any questions about the use of this product, please contact the agent or office where you purchased the product, or you can directly contact Xinje Company.

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- Hotline: 400-885-0136
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1 Production Introduction

1.1 Model Naming

DP3SL - 80 8 A

① ② ③ ④

①	Series Name	DP3SL：	DP3SL series Open-Loop RS485 Stepper Driver
②	Max. Peak Current	80：	8.4A
		70：	7A
③	Max. Operating Voltage	8：	80V
		5：	50V
④	Power Supply Type	A：	AC/DC Power Supply
		None：	DC Power Supply

1.2 Performance Features

- Added RS485 communication and single-axis control functions based on the digital driver;
- Adopts RS485 network interface, implementing real-time control and data transmission for stepper systems via Modbus RTU bus protocol;
- RS485 communication cables replace traditional pulse/direction signal wires, simplifying wiring and significantly reducing cable costs, labor costs, and maintenance costs.

1.3 Electrical Characteristics

Driver Model		DP3SL-705	DP3SL-808A
Input Power Voltage		20V~50VDC	20V~80VAC 20V~110VDC
Output Peak Current (A)		1-7	1-8.4
Matching Motor (Base Size)		42/57/60	86
Electrical Specifications	Station Address Setting	Parameters/DIP Switch	
	Digital Input Interface	6 single-ended inputs, 12-24V input voltage	
	Digital Output Interface	2 single-ended outputs, max 50mA support	
	Serial Port Debugging	Debug via RS485 port connection to host computer	
Operating Environment	Application Scenarios	Avoid dust, oil, corrosive gases, high humidity, and strong vibration. Prohibited in flammable gas or conductive dust environments.	

Driver Model		DP3SL-705	DP3SL-808A
	Ambient Temperature	0℃～50℃	
	Max. Operating Temperature	60℃	
	Humidity	40%～90％ RH (No condensation or water droplets)	
	Vibration	5.9m/s^2 Max	
	Storage Temperature	－25℃～70℃	
	Protection Rating	IP20	

1.4 Safety Precautions

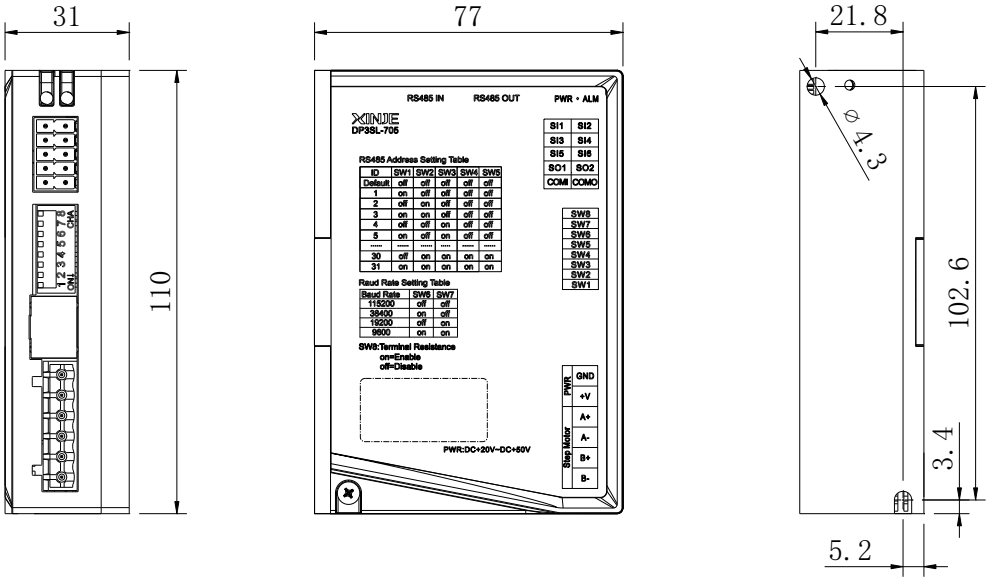
- The driver must be installed and operated by qualified technicians!
- The driver's input voltage must comply with technical requirements!
- Never hot-plug the driver power terminals! Large currents still flow through coils when the motor stops—disconnecting power terminals generates huge instantaneous induced Electromotive Force that will burn out the driver!
- Before power-on, ensure correct and secure connections of power cables, motor cables, and signal cables!
- Avoid electromagnetic interference!

2 Installation and Wiring

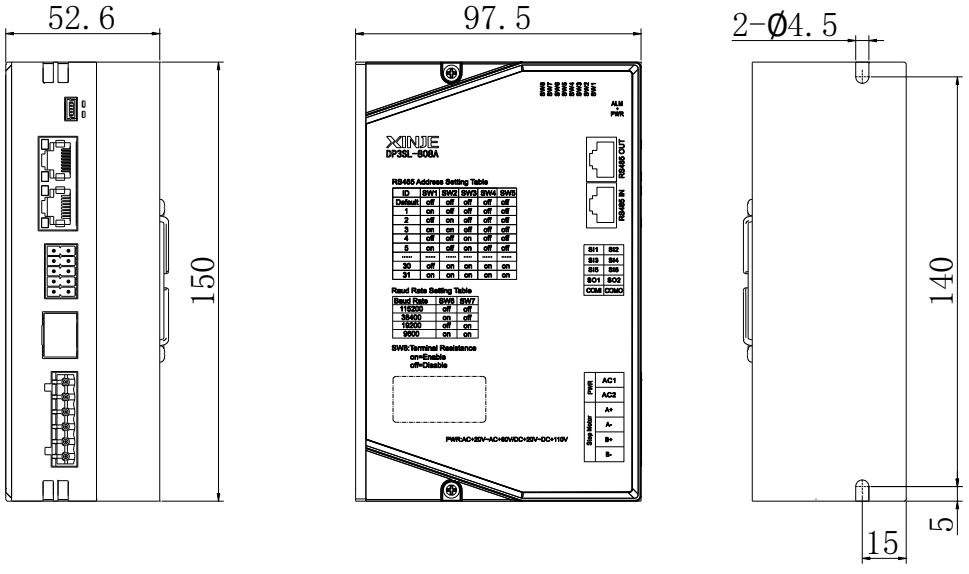
2.1 Installation

2.1.1 Dimensions

- DP3SL-705 Unit: mm



- DP3SL-808A Unit: mm

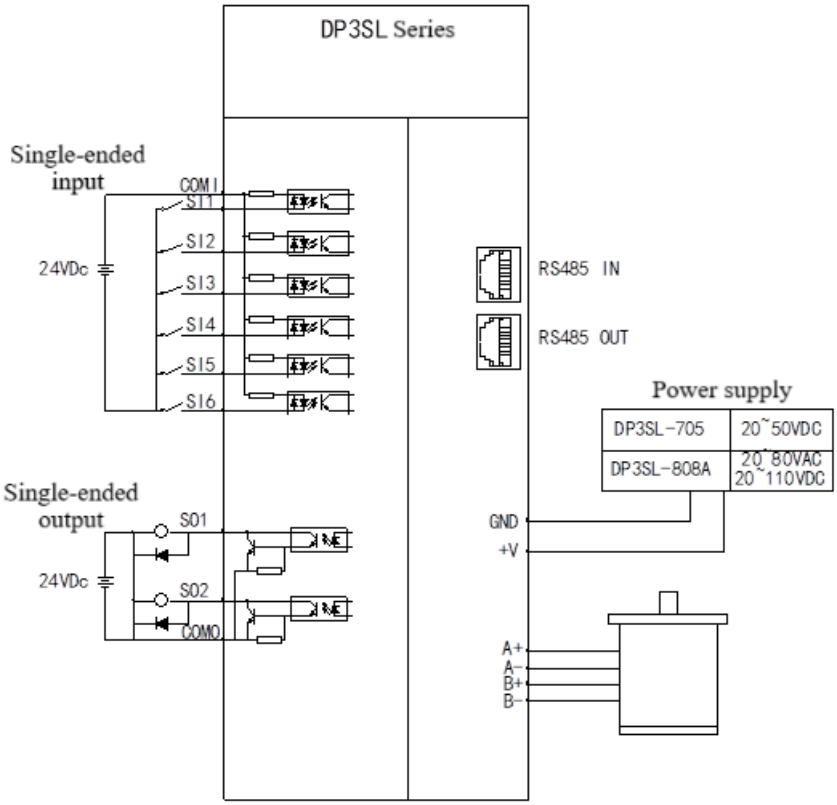


2.1.2 Installation Environment

The driver's reliable operating temperature is typically within 60°C, and the motor's operating temperature is within 80°C. To ensure the driver operates within its reliable temperature range, it should be installed in a well-ventilated and properly protected electrical cabinet. If necessary, install a fan near the driver for forced cooling. Avoid using the driver in environments with dust, oil mist, corrosive gases, excessive humidity, or strong vibrations.

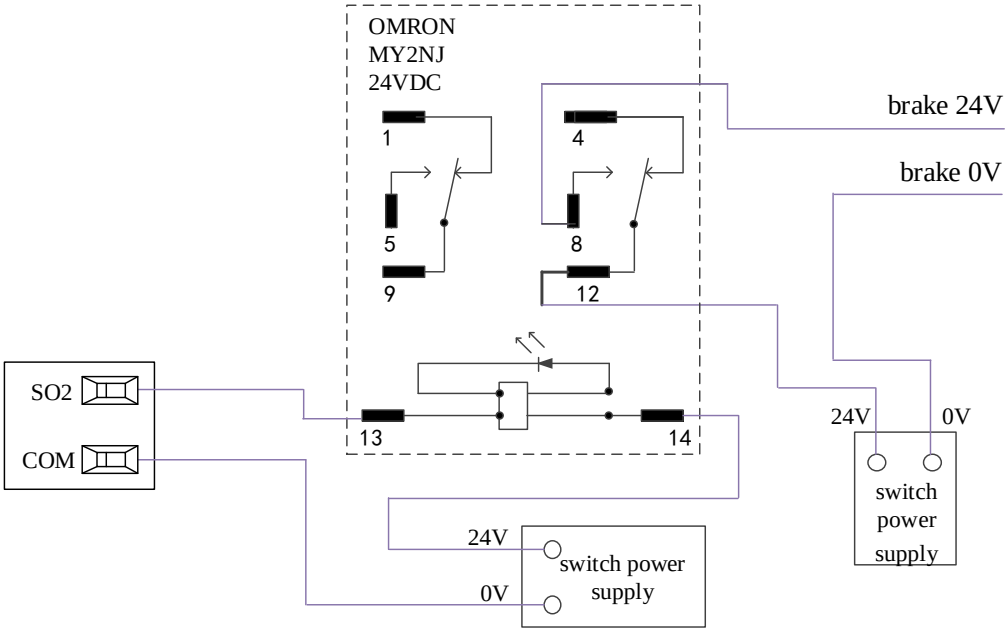
2.2 Wiring

2.2.1 Typical Wiring Diagram



2.2.2 Brake Wiring

The DP3SL stepper driver, when driving a stepper motor with a brake, controls the brake's opening or closing because the driver itself has output terminals (default: SO2 terminal) configurable as brake output.

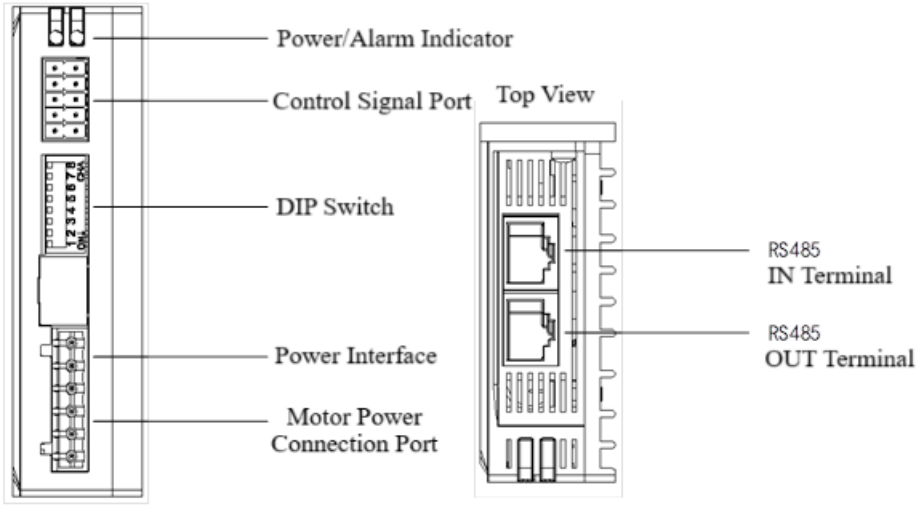


2.2.3 Wiring Notes

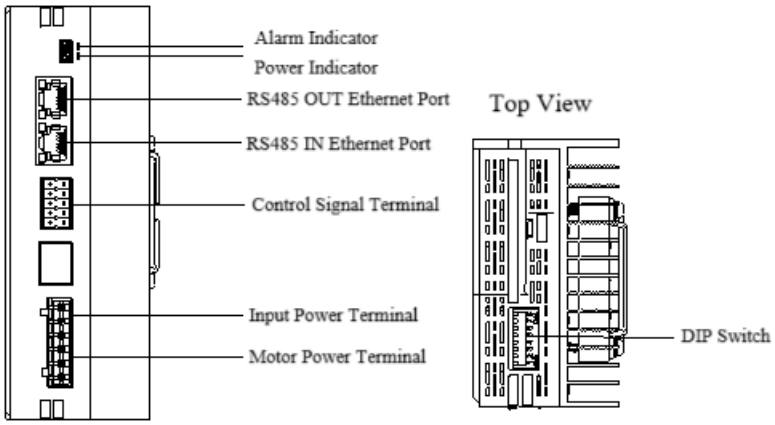
- Wiring must follow terminal voltage and polarity to prevent equipment damage and personal injury. DC driver power supply must not be reverse-connected.
- If one power supply serves multiple drivers, use parallel connections at the power source. Daisy-chaining (connecting drivers sequentially) is prohibited.
- Exposed wire ends must not extend outside terminals to avoid accidental short circuits damaging the driver.

3 Driver Interface Description

- DP3SL-705



- DP3SL-808A

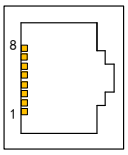


3.1 Status Indicators

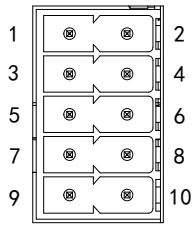
The green LED is the power indicator. It stays continuously lit when the driver is powered on and turns off when the driver is powered down.

The red LED is the fault indicator. When a fault occurs, it blinks repeatedly with a 1-second pause between sequences. After the fault is cleared by the user, the red LED remains off. The number of consecutive blinks corresponds to specific fault codes (see Section 7: Troubleshooting for details).

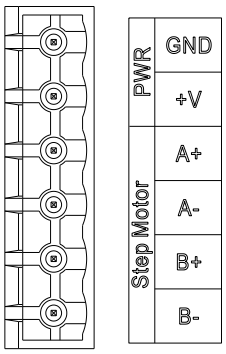
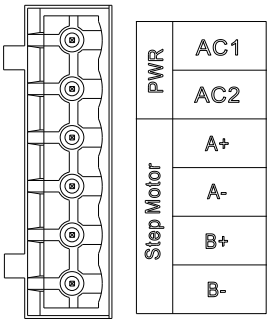
3.2 RS485 Interface Terminals

Diagram	Pin Number	Function Name
	4	485-A
	5	485-B
	6	485-GND
	Others	Reserved

3.3 Control Signal Interface

Diagram	Pin Number	Function Name	Input/Output	Description
	1	SI1	Input	Single-ended input signals SI1~SI6, valid at 12~24V, max. input frequency 10kHz, configurable functions. SI1: Default enable input, SI2: Default alarm clear, SI3: Default homing, SI4: Default emergency stop, SI5: Default positive limit, SI6: Default negative limit
	2	SI2	Input	
	3	SI3	Input	
	4	SI4	Input	
	5	SI5	Input	
	6	SI6	Input	
	7	SO1	Output	Single-ended output signals SO1~SO2, max. output current 50mA, configurable functions, SO1: Default alarm output, SO2: Default brake output
	8	SO2	Output	
	9	COMI	Input	Input signal common terminal
	10	COMO	Output	Output signal common terminal connected to GND

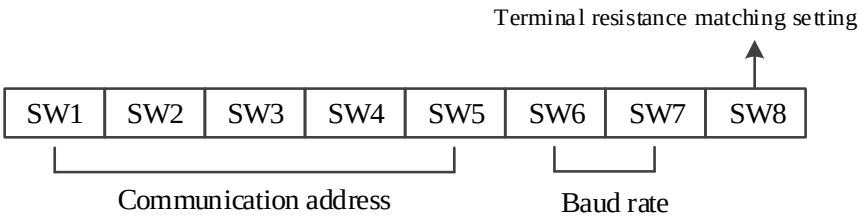
3.4 High-Power Interface

DP3SL-705	DP3SL-808A
	

Interface	Function	Description
GND	DC Power Ground	DC Power Ground
＋V	DC Power Positive	Select voltage as required
A+，A-	Motor Phase A Coil	Swap A+ and A- to reverse motor rotation
B+，B-	Motor Phase B Coil	Swap B+ and B- to reverse motor rotation
AC1，AC2	AC Power Supply	Select voltage as required

- DP3SL-705 Range 20~50VDC: Recommended 24~36VDC for 57 motors, 48V recommended for 86 motors or high-speed applications.
- DP3SL-808A Range 20~80VAC: Recommended above 48V, DC range DC+20~110VDC, recommended above 48V, AC1/AC2 power wiring has no polarity requirement.
- The 24V power supply for SI input terminals must not share a switching power supply with the driver. Otherwise, inductive loads on the power side may damage signal-side components.

3.5 DIP Switch Settings



3.5.1 Communication Address Setup

Communication Address	SW1	SW2	SW3	SW4	SW5
1 (Host Compute)r	OFF	OFF	OFF	OFF	OFF
1	ON	OFF	OFF	OFF	OFF
2	OFF	ON	OFF	OFF	OFF
3	ON	ON	OFF	OFF	OFF
4	OFF	OFF	ON	OFF	OFF
5	ON	OFF	ON	OFF	OFF
6	OFF	ON	ON	OFF	OFF
7	ON	ON	ON	OFF	OFF
8	OFF	OFF	OFF	ON	OFF
9	ON	OFF	OFF	ON	OFF
10	OFF	ON	OFF	ON	OFF
11	ON	ON	OFF	ON	OFF
12	OFF	OFF	ON	ON	OFF
13	ON	OFF	ON	ON	OFF
14	OFF	ON	ON	ON	OFF
15	ON	ON	ON	ON	OFF
16	OFF	OFF	OFF	OFF	ON
17	ON	OFF	OFF	OFF	ON
18	OFF	ON	OFF	OFF	ON
19	ON	ON	OFF	OFF	ON
20	OFF	OFF	ON	OFF	ON
21	ON	OFF	ON	OFF	ON
22	OFF	ON	ON	OFF	ON
23	ON	ON	ON	OFF	ON
24	OFF	OFF	OFF	ON	ON
25	ON	OFF	OFF	ON	ON
26	OFF	ON	OFF	ON	ON
27	ON	ON	OFF	ON	ON
28	OFF	OFF	ON	ON	ON
29	ON	OFF	ON	ON	ON
30	OFF	ON	ON	ON	ON
31	ON	ON	ON	ON	ON

- Max. 32 axes supported. Set station address by configuring SW1~SW5 DIP switches to OFF, then assign addresses (1~127) via host computer or RS485 communication.
- Station address 0 is reserved for broadcast messages (used for batch parameter modification), with no response returned from drivers.

3.5.2 Baud Rate Configuration

Baud Rate	SW6	SW7
9600	ON	ON
19200	OFF	ON
38400	ON	OFF
115200	OFF	OFF

The completion times for four baud rates are shown in the following table:

Baud Rate	Start Reception to Transmission Completion Time	Post-Reception Waiting Time	Transmission Completion to Reception Recovery Time	Total (ms)
9600	20.5	3.8	0.6	24.9
19200	10.76	2.2	0.38	13.34
38400	5.5	1.16	0.46	7.12
115200	2.44	0.64	0.6	3.08

When sending continuous multi-axis messages, there will be a PLC processing wait time (T4 in the table below) between messages. This value varies depending on the master station and baud rate.

Start Reception to Transmission Completion Time	Post-Reception Waiting Time	Transmission Completion to Reception Recovery Time	PLC Processing Wait Time
T1	T2	T3	T4

3.5.3 Termination Resistor Matching

DIP Switch	Function	ON	OFF
SW8	Termination Resistor Matching	Termination Resistor Active	Termination Resistor Inactive

When multiple DP3SL stepper drivers communicate via RS485, the last stepper slave must set SW8 DIP switch to ON. Other slaves require no SW8 adjustment.

4 RS485 Communication

XINJE provides users with a universal RS485 communication interface for industrial control. The communication protocol adopts the MODBUS standard protocol. The stepper can function as a slave device to communicate with host computers (e.g., PLC controllers, PCs) equipped with the same communication interface and protocol. This communication port also supports connections to human-machine interfaces (HMIs), enabling remote operation of the stepper by users.

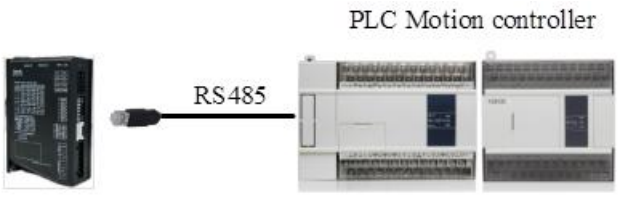
This stepper series' MODBUS communication protocol supports RTU mode.

4.1 Communication Specifications

Item		Specification	Remarks
Communication Specifications	Electrical Connection	RS485	Supports RS485
	Communication Speed	9600/19200/38400/115200	DIP Switch Setting
	Synchronization Method	Start-Stop Synchronization	
	Communication Mode	Half-duplex, Master-Slave Mode	Slave-to-Slave Communication Prohibited
	Character Composition	Start Bit: 1bit Data Length: 8bit Parity: Even Stop Bit: 1	
Protocol Specifications	Communication Protocol	Modbus RTU	
	Communication Mode	Isolated 485	
	Device Number	1-31: Valid Subdevice Count	DIP Switch/Parameter Setting
	Verification Method	CRC-16	
	Message Length	Variable, Max 100byte	

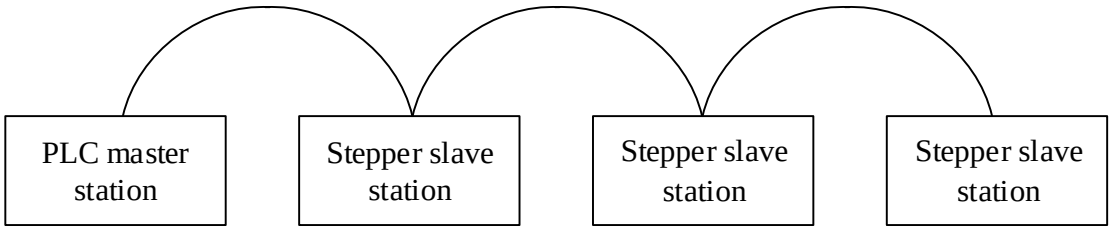
4.2 Communication Wiring

4.2.1 Communication Port Wiring

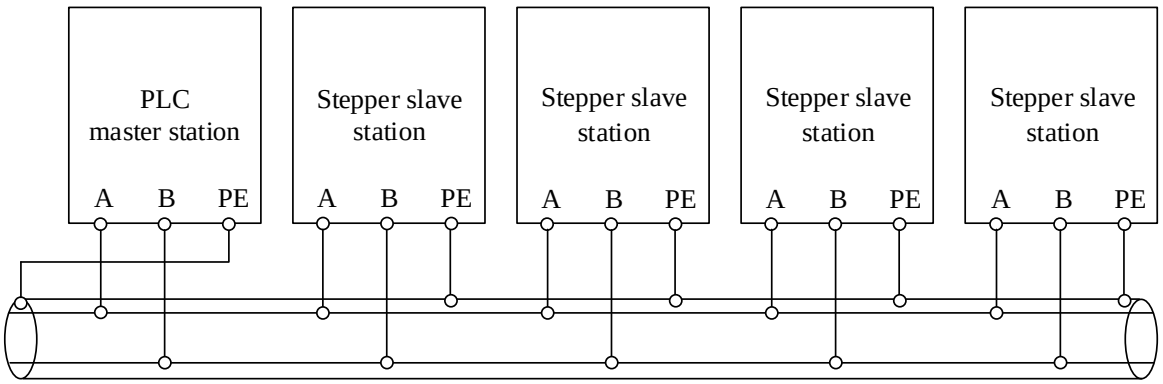


4.2.2 PLC-to-Multi-Stepper Communication (All stepper drives and motors properly grounded)

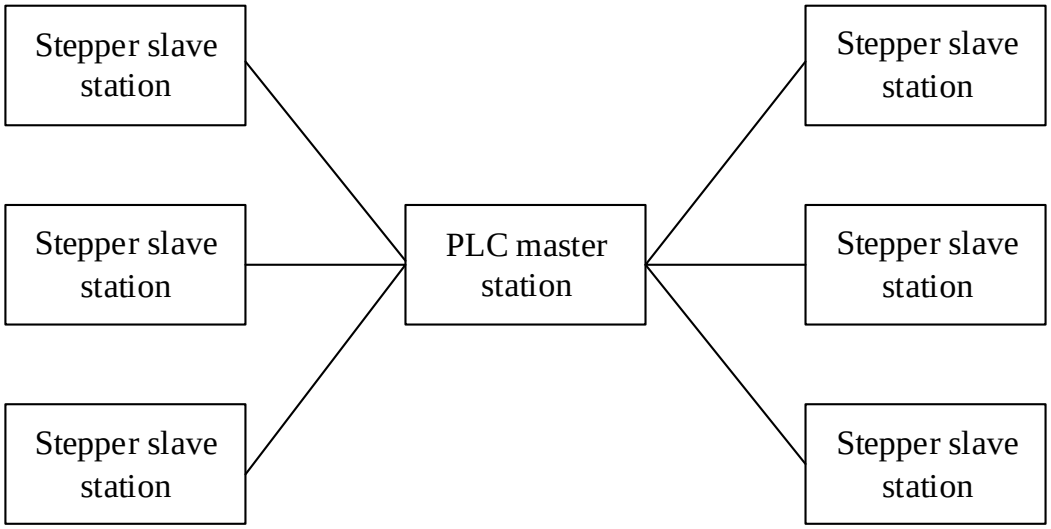
- Recommended: Daisy-chain topology



- Generally recommended: Branch structure



- Not recommended: Star topology



4.3 Communication Protocol

When communicating on a Modbus network, this protocol determines that each controller must

recognize its device address, identify messages sent to that address, and decide what action to take. If a response is required, the controller generates feedback and transmits it using the Modbus protocol. On other networks, messages containing the Modbus protocol are converted into frames or packet structures usable on that network. This conversion also extends methods for resolving node addresses, routing paths, and error detection specific to the network.

4.3.1 Character Structure

- -8-1 format, even parity

Start bit	0	1	2	3	4	5	6	7	even parity	Stop bit

4.3.2 Communication Data Structure

1）RTU Mode

START	No input signal maintained for ≥10ms
Address	Communication Address: 8-bit binary address
Function	Function Code: 8-bit binary address
DATA（n - 1）	Data Content: N*8-bit data, N≤8 (max 8 bytes)
……	
DATA 0	
CRC CHK Low	CRC Checksum
CRC CHK High	16-bit CRC checksum composed of two 8-bit binary values
END	No I/O signal maintained for ≥10ms

2）Communication Address

The manual provides Modbus addresses, and the corresponding 485 communication addresses for the parameter list (see Section 6.1 Parameter List).

3）Function Code (Function) and Data Content (DATA)

Function Code	Description
03H	Read register contents. Multiple registers can be read, but not exceeding 31 at a time. Only data within the same group can be read per operation.
06H	Write one data entry to a register.
10H	Write data to multiple registers.

- Function Code 03H: Read Register Contents

Example: Read the content of register address H0901 (P9-01).

RTU Mode:

Request Message Format		Response Message Format	
Address	01H	Address	01H
Function Code	03H	Function Code	03H
Register Address	09H	Byte Count	02H

	01H		
Register Quantity	00H	Data Content	02H
	01H		00H
CRC CHECK Low	D6H	CRC CHECK Low	B8H
CRC CHECK High	56H	CRC CHECK High	44H

- Function Code 06H: Write One Data Entry to Register

Example: Write 0x0020 (return-to-origin) to register address H0901 (P9-01).
RTU Mode:

Request Message Format		Response Message Format	
Address	01H	Addres	01H
Function Code	06H	Function Code	06H
Register Address	09H	Byte Count	09H
	01H		01H
Data Content	00H	Data Content	00H
	20H		20H
CRC CHECK Low	DAH	CRC CHECK Low	DAH
CRC CHECK High	4EH	CRC CHECK High	4EH

- Function Code 10H: Write Data to Multiple Registers

Example: Write 1 to address 0001H and write 2 to address 0002H.
RTU Mode:

Request Message Format		Response Message Format	
Address	01H	Address	01H
Function Code	10H	Function Code	10H
Register Address	00H	Byte Count	00H
	01H		01H
Register Quantity	00H	Register Quantity	00H
	02H		02H
Number of Bytes to Write	04H (2 × Number of Registers)	CRC CHECK Low	10H
High Byte of Write Data 1	00H	CRC CHECK High	08H
Low Byte of Write Data 1	01H		
High Byte of Write Data 2	00H		
Low Byte of Write Data 2	02H		
CRC CHECK Low	E2H		
CRC CHECK High	62H		

4）Checksum

RTU Mode: Two-byte hexadecimal value.
The CRC field consists of two bytes containing a 16-bit binary value. It is calculated by the transmitting device and appended to the message (low byte first, then high byte), making the CRC high byte the final byte of the transmitted message.
The receiving device recalculates the CRC of the received message and compares it with the CRC field value. If mismatched, the frame is discarded without response, and the device continues receiving the next frame.

5 PR Function Description

Built-in single-axis motion control function (PR): Configurable 16-segment position programs, supporting positioning/homing/limit/emergency stop/JOG functions.

5.1 Homing Function

5.1.1 Parameter Settings

<table>
<tr><th>Parameter</th><th>Address</th><th>Name</th><th>Description</th></tr>
<tr><td>P9-06</td><td>0x0906</td><td>Homing Mode</td><td>
<table>
<tr><td>Corresponding Bit</td><td>Bit2</td><td>Bit1</td><td>Bit0</td></tr>
<tr><td>Description</td><td>Homing Mode</td><td>Whether to Move to Specified Position After Homing</td><td>Homing Direction</td></tr>
<tr><td>Set to 0</td><td>Limit Switch Homing</td><td>No</td><td>Reverse Direction</td></tr>
<tr><td>Set to 1</td><td>Origin Homing</td><td>Yes</td><td>Forward Direction</td></tr>
</table>
</td></tr>
<tr><td>P9-07</td><td>0x0907</td><td>Origin Position (Low)</td><td>0 (Non-modifiable)</td></tr>
<tr><td>P9-08</td><td>0x0908</td><td>Origin Position (High)</td><td>0 (Non-modifiable)</td></tr>
<tr><td>P9-09</td><td>0x0909</td><td>Origin Offset Position (Low)</td><td>0 (Non-modifiable)</td></tr>
<tr><td>P9-10</td><td>0x090A</td><td>Origin Offset Position (High)</td><td>0 (Non-modifiable)</td></tr>
<tr><td>P9-11</td><td>0x090B</td><td>Homing High Speed</td><td>First-stage homing speed, unit: rpm</td></tr>
<tr><td>P9-12</td><td>0x090C</td><td>Homing Low Speed</td><td>Second-stage homing speed, unit: rpm</td></tr>
<tr><td>P9-13</td><td>0x090D</td><td>Homing Acceleration Time</td><td>Homing acceleration, unit: ms (Time required per 1000rpm acceleration)</td></tr>
<tr><td>P9-14</td><td>0x090E</td><td>Homing Deceleration Time</td><td>Homing deceleration, unit: ms (Time required per 1000rpm deceleration)</td></tr>
<tr><td>P9-15</td><td>0x090F</td><td>Homing Overtravel</td><td>No alarm triggered if homing overtravel distance = 0 (unit: 0.1 revolutions).
When homing overtravel is set, the motor stops after traveling the set distance, even if homing isn't completed.</td></tr>
</table>

5.1.2 Homing Mode

Method 1: Origin Homing

Select origin homing mode. Based on the homing direction and the positions of limit/origin switches, this combines into the following four scenarios:

1）Origin + Positive Limit Homing

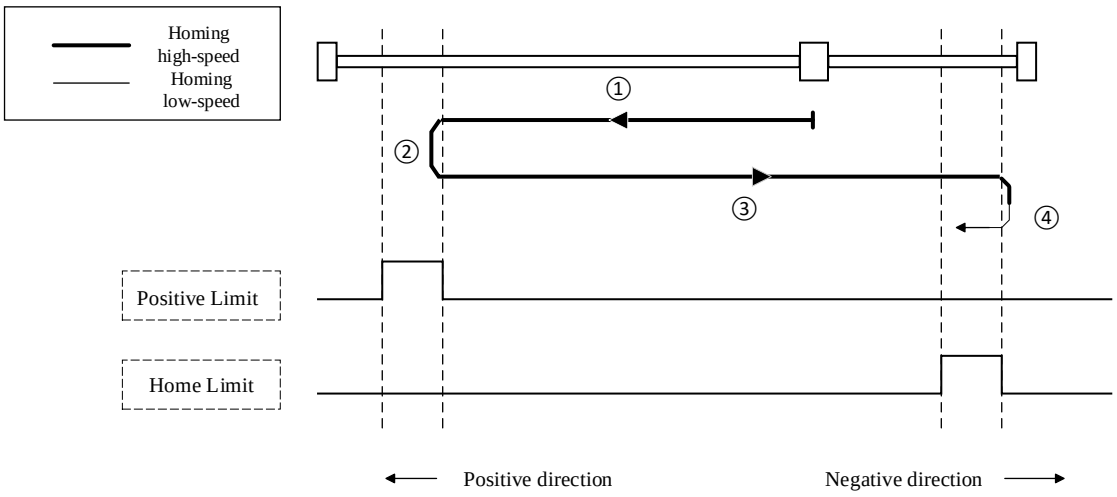
Starting position between positive limit and origin. Upon homing initiation, movement begins toward the positive limit.

① Speed accelerates from 0 to homing high speed, maintaining constant speed until reaching the positive limit;

② Upon detecting the positive limit's rising edge, speed decelerates from homing high speed to 0, then moves toward the negative limit with acceleration to homing high speed;

③ Maintains constant speed until reaching the origin;

④ Upon detecting the origin signal's falling edge, speed decelerates from homing high speed to 0, reverses toward the positive limit with acceleration to homing low speed, and stops after decelerating to 0 upon detecting the origin signal's rising edge.



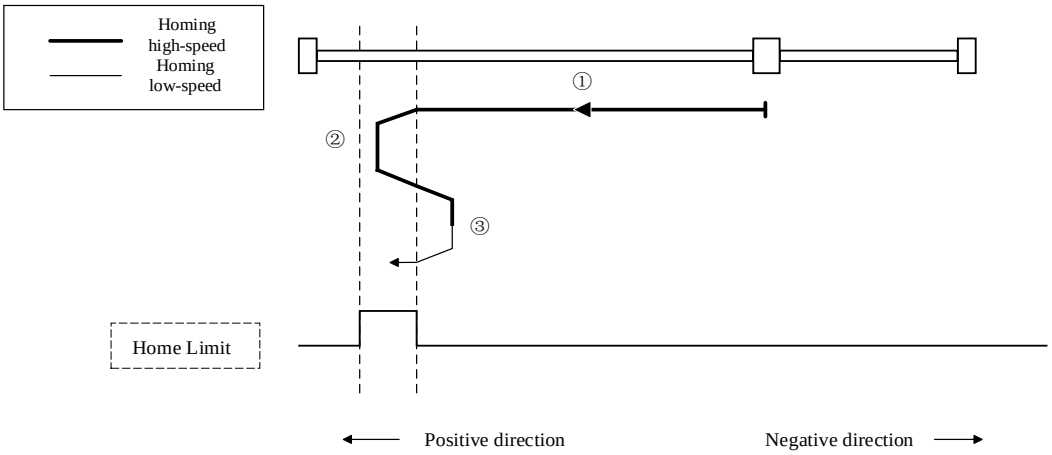
2）Forward Direction Origin Homing

Starting position between negative limit and origin. Upon homing initiation, movement begins toward the positive limit.

① Speed accelerates from 0 to homing high speed, maintaining constant speed until reaching the origin signal;

② Upon detecting the origin signal's rising edge, speed decelerates from homing high speed to 0, then moves toward the negative limit with acceleration to homing high speed;

③ Upon detecting the origin signal's falling edge, speed decelerates from homing high speed to 0, reverses toward the positive limit with acceleration to homing low speed, and stops after decelerating to 0 upon detecting the origin signal's rising edge.



3）Origin + Negative Limit Homing

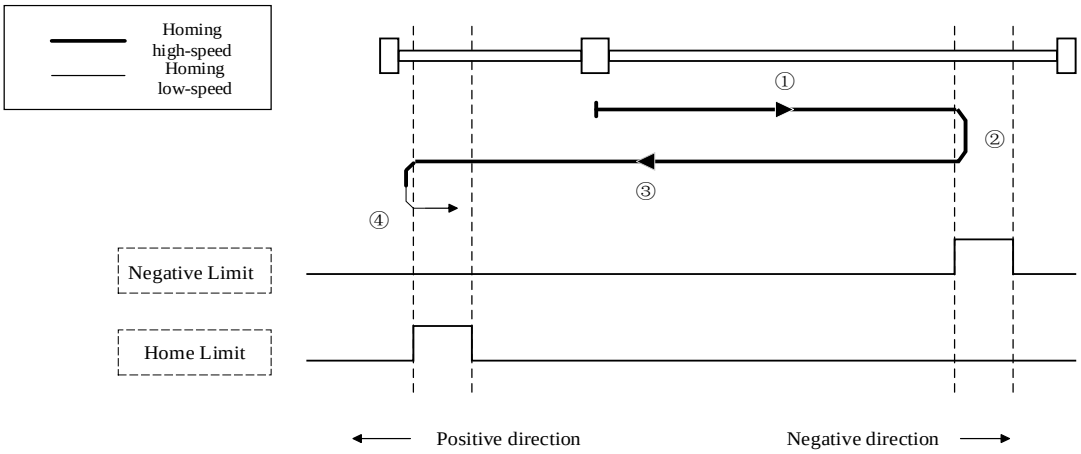
Starting position between negative limit and origin. Upon homing initiation, movement begins toward the negative limit.

① Speed accelerates from 0 to homing high speed, maintaining constant speed until reaching the negative limit;

② Upon detecting the negative limit's rising edge, speed decelerates from homing high speed to 0, then moves toward the positive limit with acceleration to homing high speed;

③ Maintains constant speed until reaching the origin;

④ Upon detecting the origin signal's falling edge, speed decelerates from homing high speed to 0, reverses toward the negative limit with acceleration to homing low speed, and stops after decelerating to 0 upon detecting the origin signal's rising edge.



4）Reverse Direction Origin Homing

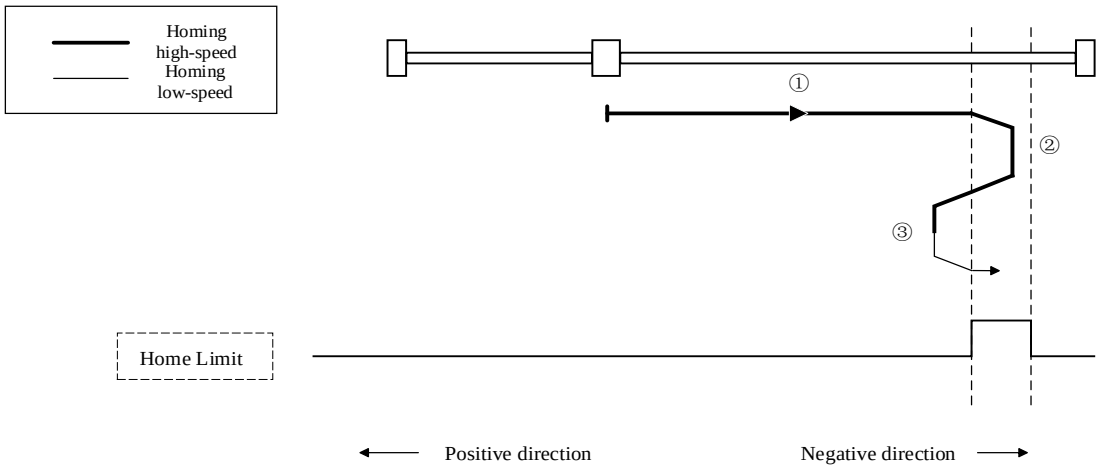
Starting position between positive limit and origin. Upon homing initiation, movement begins toward the negative limit.

① Speed accelerates from 0 to homing high speed, maintaining constant speed until reaching the origin signal;

② Upon detecting the origin signal's rising edge, speed decelerates from homing high speed to 0, then moves toward the positive limit with acceleration to homing high speed;

③ Upon detecting the origin signal's falling edge, speed decelerates from homing high speed to 0,

reverses toward the negative limit with acceleration to homing low speed, and stops after decelerating to 0 upon detecting the origin signal's rising edge.



Method 2: Limit Switch Homing

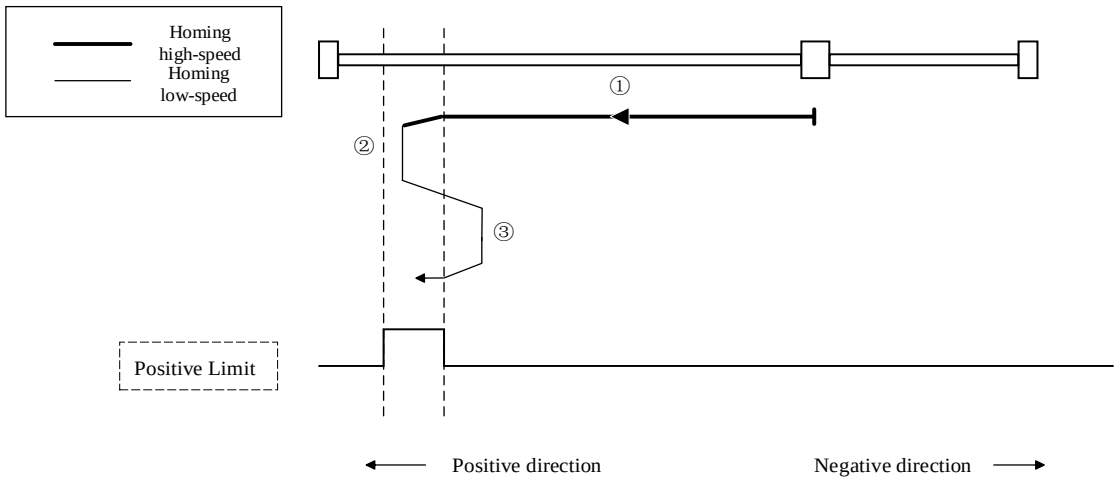
1）Positive Limit Homing

Starting position between positive and negative limits. Upon homing initiation, movement begins toward the positive limit.

① Speed accelerates from 0 to homing high speed, maintaining constant speed until reaching the positive limit signal;

② Upon detecting the positive limit's rising edge, speed decelerates from homing high speed to 0, then moves toward the negative limit with acceleration to homing low speed;

③ Upon detecting the positive limit's falling edge, speed decelerates from homing low speed to 0, reverses toward the positive limit with acceleration to homing low speed, and stops after decelerating to 0 upon detecting the origin signal's rising edge.

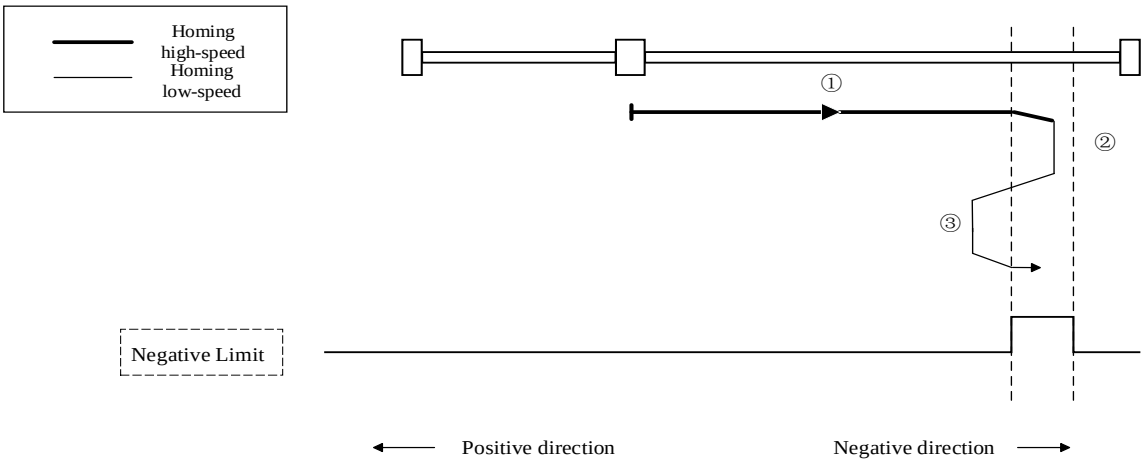


2）Negative Limit Homing

Starting position between positive and negative limits. Upon homing initiation, movement begins toward the negative limit.

① Speed accelerates from 0 to homing high speed, maintaining constant speed until reaching the negative limit signal;

② Upon detecting the negative limit's rising edge, speed decelerates from homing high speed to 0, then moves toward the positive limit with acceleration to homing low speed;
③ Upon detecting the negative limit's falling edge, speed decelerates from homing low speed to 0, reverses toward the negative limit with acceleration to homing low speed, and stops after decelerating to 0 upon detecting the origin signal's rising edge.



Method 3: Manual Zero Setting

Write 0x021 to register address 0x0901 (P9-01 Trigger Register). When triggered, the motor's current value resets to zero, setting the current position as the origin. Can be triggered during operation.

5.1.3 Trigger Method

Method 1: Power-On Auto Homing

Write 1 to bit2 of register address 0x0900 (P9-00). After the driver powers on and enables, the motor automatically seeks the origin.

Method 2: Triggered Homing

1）IO Port HOME Trigger

- **Edge Trigger / Level Trigger**

Edge Trigger: When the path requires a trigger signal (CTRG) from an IO port, configure as rising-edge or dual-edge trigger (no falling-edge trigger function).
Level Trigger: Configurable via RS485. The path starts while the IO trigger signal level is maintained and stops if the level fails mid-process. The path restarts upon the next trigger.

<table>
<tr><th>Definition</th><th>Address</th><th>Function Description</th><th>Remarks</th></tr>
<tr><td>PR Control Settings</td><td>P9-00 (0x0900)</td><td>
<table>
<tr><td>Corresponding Bit</td><td>Bit3</td><td>Bit0</td></tr>
<tr><td>Description</td><td>Level Trigger</td><td>Edge Trigger</td></tr>
<tr><td>Set to 0</td><td>Invalid</td><td>Rising Edge</td></tr>
<tr><td>Set to 1</td><td>Valid</td><td>Dual Edge</td></tr>
</table>
</td><td>When Level Trigger is active, Bit0 trigger method and RS485 communication trigger become invalid.</td></tr>
</table>

- **IO Combination Trigger**

Configured via parameter P9-18 Combination Trigger Mode. Using IO combination trigger eliminates the need for a separate trigger signal (CTRG) on IO ports, saving IO resources and simplifying control.

Definition	Address	Function Description	Remarks
IO Combination Trigger Mode	P9-18 (0x0912)	0: IO Combination Trigger (Default) 2: IO Combination Trigger (Valid only after homing OK) 4: IO Combination Trigger (No homing required - Recommended)	-

2）PR Path Trigger

Write 3 to Bits 0-3 of address 0x0A00 + n*8 to execute homing.

Definition	Address	Function Description	Remarks
Motion Mode Path	P10-00 + n*8 (0x0A00 + n*8)	Bit 0-3=3: Homing	-

3）RS485 Communication Trigger

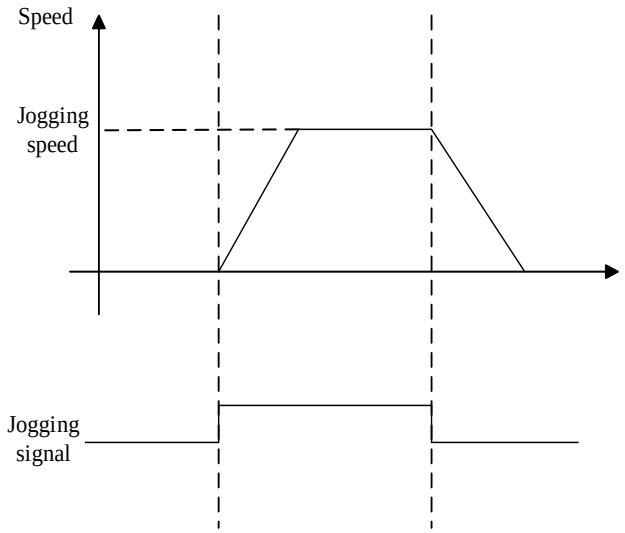
Write 0x020 to address 0x0901 (P9-01) for homing;
Write 0x021 to address 0x0901 (P9-01) to manually set the current position as zero.

Definition	Address	Function Description	Remarks
Trigger Register	P9-01 (0x0901)	0x020: Homing 0x021: Manual Zero Setting at Current Position	-

5.2 JOG Function

Forward/Reverse JOG via IO or RS485 communication, usable for debugging. This function enables device alignment, debugging, and motor forward/reverse speed operation. Commonly used for speed testing. JOG is divided into RS485-Triggered JOG and IO-Triggered JOG, each type uses different parameter addresses.

The JOG timing diagram is shown below, upon detecting the JOG signal's rising edge, speed accelerates from 0 to JOG speed, upon detecting the falling edge, speed decelerates from JOG speed to 0.



Method 1: RS485 Communication Trigger

Definition	Address	Function Description	Remarks
Control Commands	0x2100	0: Disable 2: Forward Direction Run 3: Reverse Direction Run 5: Enable	Write
JOG Speed	0x0916 (P9-22) 0x0917 (P9-23)	Unit: rpm	Write
JOG Acceleration Time	0x0918 (P9-24)	Unit: ms (Time required per 1000rpm acceleration)	Write
JOG Deceleration Time	0x0919 (P9-25)	Unit: ms (Time required per 1000rpm deceleration)	Write

Method 2: IO Trigger

Assign Forward JOG or Reverse JOG functions to IO ports. Applying a level signal to the IO port triggers JOG operation.

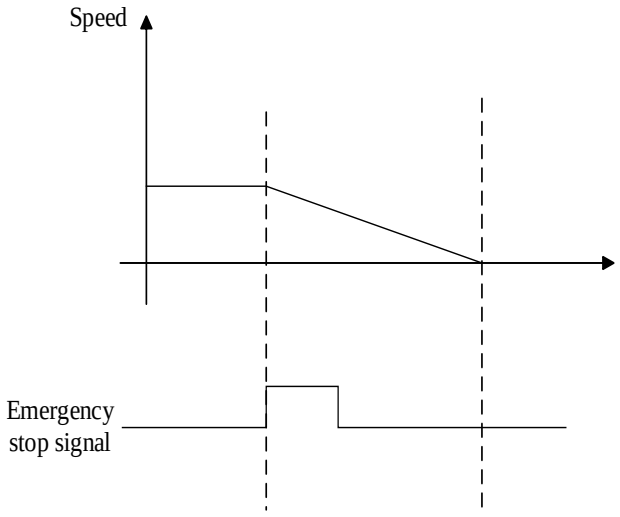
Definition	Address	Function Description
IO Ports SI1~SI6	P2-00~P2-05	4: Forward JOG 5: Reverse JOG

5.3 Limit & Emergency Stop Functions

Hard limit and emergency stop functions: After assigning forward limit, reverse limit, and emergency stop functions to IO ports, applying level signals to the IO ports will trigger the limit and emergency stop functions.

Soft limits can be set via P9-02~P9-05 to configure software-defined forward and reverse position limits.

When the emergency stop signal's rising edge is detected, speed decelerates to 0.



Emergency stop sequence diagram

Definition	Parameter	Function Description
IO Ports SI1~SI6	P2-00~P2-05	3: Emergency Stop Function 6: Positive Limit 7: Negative Limit
Positive Limit (Low)	P9-02	Software forward position limit (low word). Invalid during homing.
Positive Limit (High)	P9-03	Software forward position limit (high word). Invalid during homing.
Negative Limit (Low)	P9-04	Software reverse position limit (low word). Invalid during homing.
Negative Limit (High)	P9-05	Software reverse position limit (high word). Invalid during homing.

5.4 Positioning Function

5.4.1 Path Configuration

The PR path of the DP3SL series driver is formed by combining Address 0, Address 1, Address 2, and Address 3 to create a path number. Operating this path number completes the PR action.

Each IO port of the driver can be configured as any one of Address 0 to Address 3. The final path number is determined by the combination of Address 0 to Address 3.

Not every IO port needs to be assigned all addresses (0 to 3) unless all 16 path segments are required. Otherwise, assigning unused Address x wastes IO resources.

If only one path segment (Path 0) is used, there is no need to configure Address x for the IO port, as all Address x values are OFF for Path 0.

IO / Operation Path	SI1 (Address 0)	SI2 (Address 1)	SI3 (Address 2)	SI4 (Address 3)

IO / Operation Path	SI1 (Address 0)	SI2 (Address 1)	SI3 (Address 2)	SI4 (Address 3)
Path 0	0	0	0	0
Path 1	1	0	0	0
Path 2	0	1	0	0
Path 3	1	1	0	0
Path 4	0	0	1	0
Path 5	1	0	1	0
Path 6	0	1	1	0
Path 7	1	1	1	0
Path 8	0	0	0	1
Path 9	1	0	0	1
Path 10	0	1	0	1
Path 11	1	1	0	1
Path 12	0	0	1	1
Path 13	1	0	1	1
Path 14	0	1	1	1
Path 15	1	1	1	1

5.4.2 Fixed Trigger Method

Fixed Trigger Method means pre-configuration up to 16 homing and path segments, then uses 0x0901 (P9-01 Trigger Register) to replace CTRG and HOME for path initiation. Suitable for systems with fixed, simple operations.

Steps:

1、Configure required homing and path segments, parameters can be sent temporarily during power-on or saved via host computer;

2、Enable the driver;

3、Write corresponding commands to 0x0901 (P9-01) to select and initiate actions.

Definition	Address	Function Description
Trigger Registers	P9-01 (0x0901)	0x01P: P is the path number 0~F, P segment positioning 0x020: Return to zero 0x021: Manually set current position to zero 0x040: Emergency stop

5.4.3 Immediate Trigger Method

Fixed triggering is limited by 16 segment positions, while immediate triggering is more flexible. It writes the current path each time and simultaneously triggers the operation of this path. A single data frame is used to achieve actions such as positioning, speed, and homing.

Steps:

1、 First, configure the required homing and path operations. Parameters can be sent temporarily upon

power-up or pre-configured and saved using the host computer (homing must be configured);

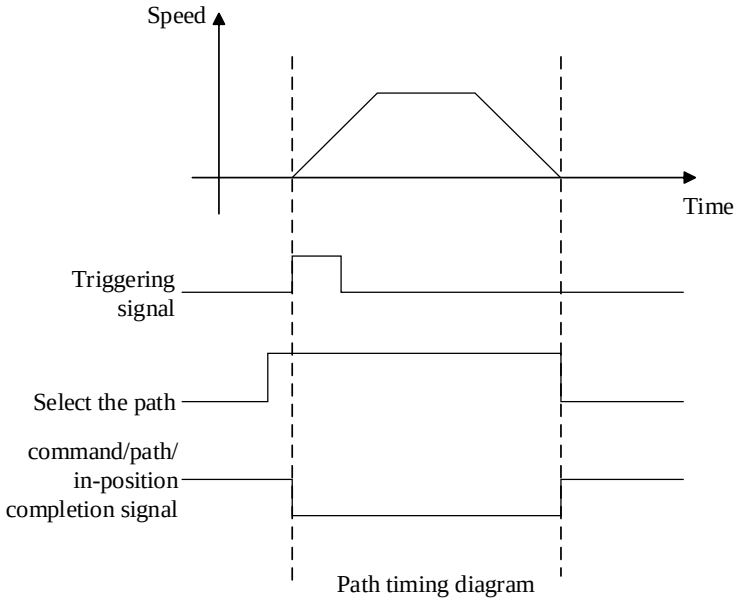
2、 Enable the drive;

3、 Set the path value via P9-01 (0x0901) to operate the fixed path.

5.4.4 Path Trigger Method

The path can operate in single-segment mode or continuous mode. There are three types of positioning paths: position positioning type, speed operation type, and homing type. There are a total of 16 PR paths, and each path is individually configured with motion type, positioning mode, speed, acceleration/deceleration, and dwell time. Specific path editing can be done through debugging software or parameter settings.

After selecting the desired path, upon detecting the rising edge of the trigger signal, the corresponding path begins operation. At this time, there is no output of the "In Position" command/path/completion signal. When the current path segment is completed, the "In Position" command/path/completion signal outputs a high level.



Path timing diagram

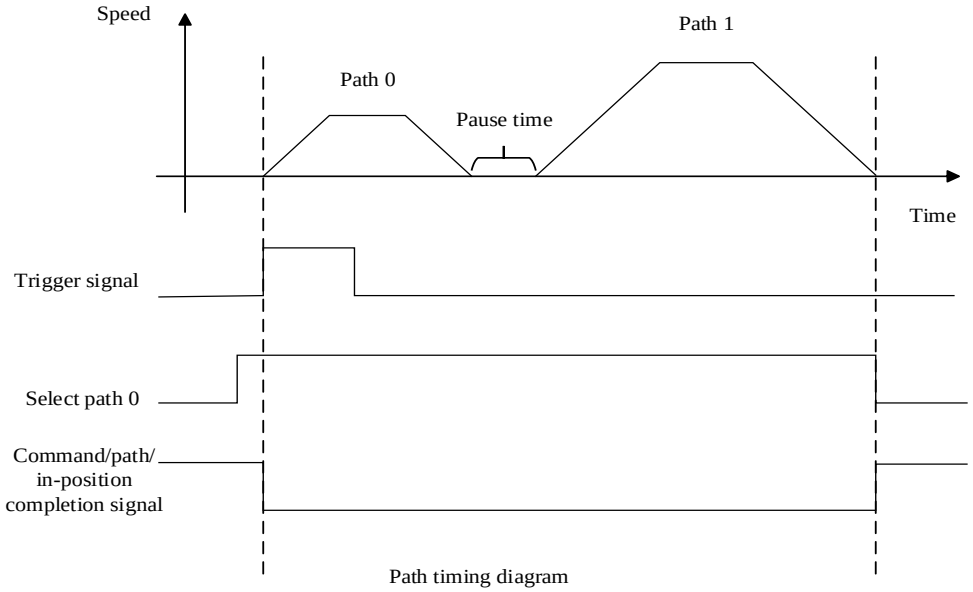
Method 1: Multi-segment Jump Operation

Enables continuous and cyclic jump operations between multiple path segments. When a path is triggered and completes its motion, it decelerates to zero, pauses for the set dwell time, then accelerates and jumps to the next designated path, and so on.

Example: Path 0 (positioning mode) jumps to Path 1 (speed mode)

First, select Path 0. When the rising edge of the trigger signal is detected, Path 0 starts moving. After Path 0 completes, it pauses for the dwell time, then jumps to Path 1. When Path 1 completes, the "In Position" command/path/completion signal outputs a high level.

During the dwell time after Path 0 completes, there is no "In Position" command/path/completion signal.

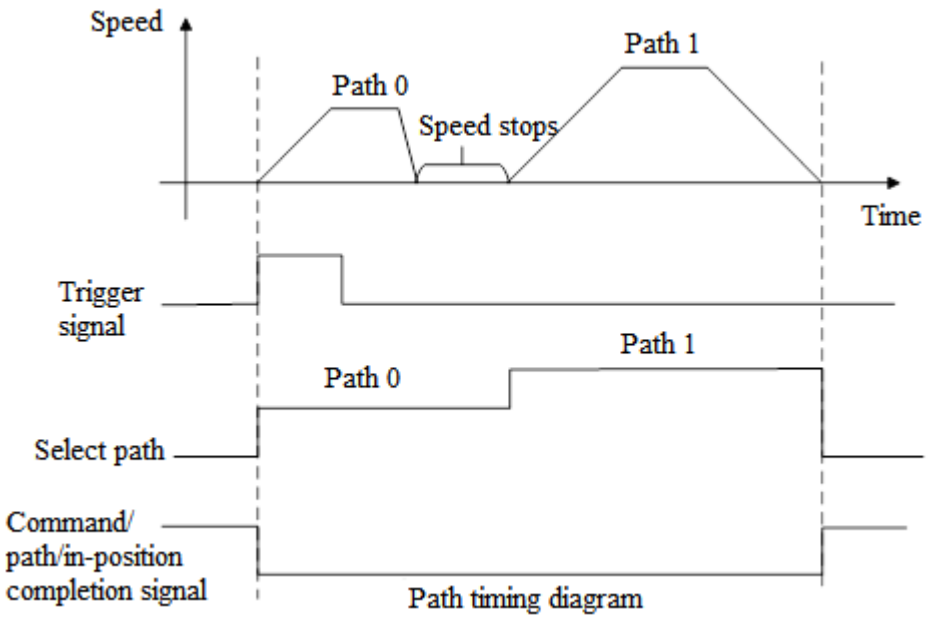


Path timing diagram

<table>
<tr><th>Parameter</th><th>Meaning</th><th>Remarks</th></tr>
<tr><td>P10-00</td><td>Motion Mode Path 0</td><td>
<table>
<tr><td>Corresponding Bit</td><td>Bit14</td><td>Bit8-11</td><td>Bit6</td><td>Bit4</td><td>Bit0~3</td></tr>
<tr><td>Description</td><td>Jump</td><td>Jump to Path 1</td><td>Absolute/Relative</td><td>Interruptible</td><td>Position Positioning</td></tr>
<tr><td>Set Value</td><td>1</td><td>0001</td><td>0/1</td><td>0</td><td>001</td></tr>
</table>
</td></tr>
<tr><td>P10-01</td><td>Position (Low)</td><td rowspan="2">Bit 31
0: Positive direction
1: Negative direction</td></tr>
<tr><td>P10-02</td><td>Position (High)</td></tr>
<tr><td>P10-03</td><td>Running speed</td><td>Unit rpm</td></tr>
<tr><td>P10-04</td><td>Acceleration time</td><td>Unit ms (acceleration time required per 1000rpm)</td></tr>
<tr><td>P10-05</td><td>Deceleration time</td><td>Unit ms (deceleration time required per 1000rpm)</td></tr>
<tr><td>P10-06</td><td>Dwell time</td><td>Dwell time after command stop</td></tr>
<tr><td>P10-08</td><td>Motion Mode Path 1</td><td>
<table>
<tr><td>Corresponding Bit</td><td>Bit7</td><td>Bit4</td><td>Bit0~3</td></tr>
<tr><td>Description</td><td>Reverse/Forward</td><td>Interruptible</td><td>Speed operation</td></tr>
<tr><td>Set Value</td><td>0/1</td><td>0</td><td>010</td></tr>
</table>
</td></tr>
<tr><td>P10-11</td><td>Running speed</td><td>Unit rpm</td></tr>
<tr><td>P10-12</td><td>Acceleration time</td><td>Unit ms (acceleration time required per 1000rpm)</td></tr>
<tr><td>P10-13</td><td>Deceleration time</td><td>Unit ms (deceleration time required per 1000rpm)</td></tr>
</table>

Method 2: Continuous operation, continuous paths non-overlapping

Example: Path 0 (position positioning) and Path 1 (speed operation) run continuously;

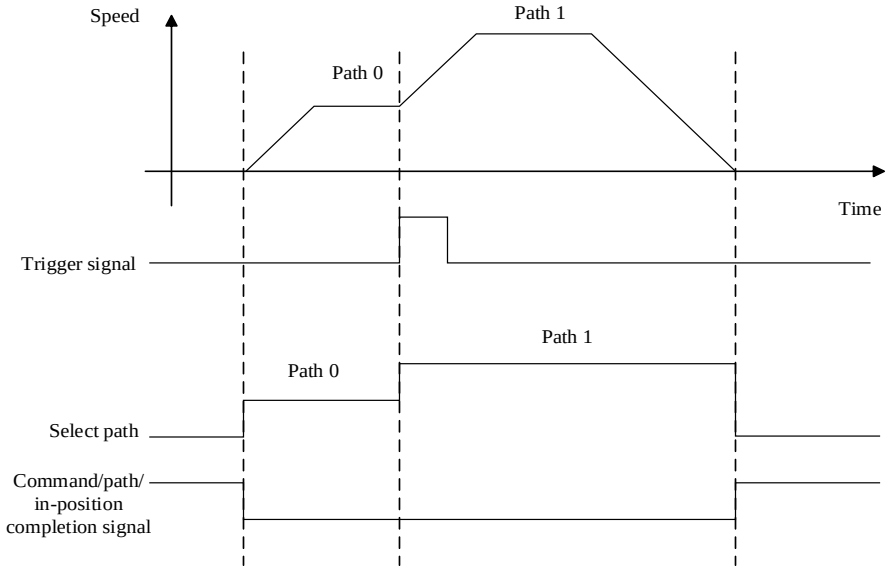


<table>
<tr><th>Parameter</th><th>Meaning</th><th>Remarks</th></tr>
<tr><td>P10-00</td><td>Motion Mode Path 0</td><td>
<table>
<tr><td>Corresponding Bit</td><td>Bit14</td><td>Bit8-11</td><td>Bit6</td><td>Bit5</td><td>Bit0~3</td></tr>
<tr><td>Description</td><td>Jump</td><td>Jump to Path 1</td><td>Absolute/Relative</td><td>Non-overlapping</td><td>Position Positioning</td></tr>
<tr><td>Set Value</td><td>1</td><td>0001</td><td>0/1</td><td>0</td><td>001</td></tr>
</table>
</td></tr>
<tr><td>P10-01</td><td>Position (Low)</td><td rowspan="2">Bit 31
0: Positive direction
1: Negative direction</td></tr>
<tr><td>P10-02</td><td>Position (High)</td></tr>
<tr><td>P10-03</td><td>Running speed</td><td>Unit rpm</td></tr>
<tr><td>P10-04</td><td>Acceleration time</td><td>Unit ms (acceleration time required per 1000rpm)</td></tr>
<tr><td>P10-05</td><td>Deceleration time</td><td>Unit ms (deceleration time required per 1000rpm)</td></tr>
<tr><td>P10-06</td><td>Dwell time</td><td>Dwell time for continuous operation is 0</td></tr>
<tr><td>P10-08</td><td>Motion Mode Path 1</td><td>
<table>
<tr><td>Corresponding Bit</td><td>Bit7</td><td>Bit5</td><td>Bit0~3</td></tr>
<tr><td>Description</td><td>Reverse/Forward</td><td>Non-overlapping</td><td>Speed operation</td></tr>
<tr><td>Set Value</td><td>0/1</td><td>0</td><td>010</td></tr>
</table>
</td></tr>
<tr><td>P10-11</td><td>Running speed</td><td>Unit rpm</td></tr>
<tr><td>P10-12</td><td>Acceleration time</td><td>Unit ms (acceleration time required per 1000rpm)</td></tr>
<tr><td>P10-13</td><td>Deceleration time</td><td>Unit ms (deceleration time required per 1000rpm)</td></tr>
</table>

Method 3: Interrupt function

The interrupt function can be understood as a path priority. For paths with interrupt enabled, when triggered, they can interrupt and abandon the current path, directly executing this path. Similar to interrupt priority in functions.

Example: Configure two paths. When Path 0 is running but not yet completed, using the interrupt function allows jumping to the speed and path of Path 1 while maintaining speed continuity even if Path 0 is unfinished.



Path timing diagram

<table>
<tr><th>Parameter</th><th>Meaning</th><th>Remarks</th></tr>
<tr><td>P10-00</td><td>Motion Mode Path 0</td><td>
<table>
<tr><td>Corresponding Bit</td><td>Bit14</td><td>Bit8-11</td><td>Bit6</td><td>Bit4</td><td>Bit0~3</td></tr>
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<tr><td>P10-05</td><td>Deceleration time</td><td>Unit ms (deceleration time required per 1000rpm)</td></tr>
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<tr><td>P10-08</td><td>Motion Mode Path 1</td><td>
<table>
<tr><td>Corresponding Bit</td><td>Bit7</td><td>Bit4</td><td>Bit0~3</td></tr>
<tr><td>Description</td><td>Reverse/Forward</td><td>Interruptible</td><td>Speed operation</td></tr>
<tr><td>Set Value</td><td>0/1</td><td>0</td><td>010</td></tr>
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<tr><td>P10-13</td><td>Deceleration time</td><td>Unit ms (deceleration time required per 1000rpm)</td></tr>
</table>

5.4.5 S-Code Output Settings

S-code (State Code) refers to the output indicating the status of the currently executing PR path, used to display whether the current path is in progress or completed.

During normal path program execution, regardless of which path segment is completed, the drive uniformly outputs the operating status, making it difficult to identify the specific segment's state. The S-code function helps pinpoint the exact path. To identify the operating status of a specific path segment, assign an S-code to that segment. Then, by reading the output port status or the value of P9-20 (0x0914), the status can be determined.

Each PR path can be assigned an S-code, meaning each path has a dedicated S-code register. The specific value of the S-code can be customized by the user according to the table format below.

S-Code	High byte		Low byte	
Bit position	Bit15	Bit8、Bit9	Bit7	Bit0、Bit1
Description	Whether S-code is valid upon completion: 0: Invalid 1: Valid (recommended)	S-code upon completion	Whether S-code is valid upon completion: 0: Invalid 1: Valid (recommended)	S-code upon startup

The DP3SL series driver has only 2 output ports, so the S-code can only use 2 bit positions, with each bit corresponding to one output. Therefore, the output combination has only 4 states (00, 01, 10, 11). These 4 states can be freely configured according to customer requirements.

If hardware output is required when using the S-code, the output ports must be configured for S-code output functionality.

In the S-code bit0-15 list, after calculating the binary setting value, convert the value to hexadecimal. Then, in the PR path table, enter the S-code setting value in the far-right column of each path segment to enable its use.

Example: Using Path 1-2 as an illustration:

- Configure the output port for S-code output functionality, with polarity set to normally open;
- 1 indicates the output optocoupler is conducting;
- 0 indicates the output optocoupler is off;
- 01 indicates output port 1 is conducting, and output port 2 is not conducting;
- P9-20: Current output value of S-code, register address: 0x0914.

Path Number	Completion Function Code Bit8、Bit9	Start Function Code Bit0、Bit1	S-Code Setting Value	Remarks	P9-20 Setting Value
Path 1	01	00	Binary: 1000 0001 1000 0000 Hexadecimal: 0x8180	At Startup: No level on both output ports At Completion: Output port 1 has level	1
Path 2	11	10	Binary: 1000 0011 1000 0010 Hexadecimal: 0x8382	At Startup: Output port 2 has level At Completion: Output ports 1 and 2 have level	3

6 Parameter Explanation and Settings

6.1 Parameter List

P0 Group: Basic Function Parameters

Parameter	Address	Meaning	Range	Default	Remarks
P0-01	0x0001	Subdivision	200~51200	10000	Cannot be modified
P0-02	0x0002	Filtering time	0~48	1	Repowering on takes effect; 0: Disable filtering function
P0-04	0x0004	Mode selection	0~3	3	3: PR motion mode
P0-05	0x0005	Open loop current percentage	1~100	50	Open loop operating current = percentage of open loop current * peak current
P0-15	0x000F	Rigid grade	0~7	3	The larger the value, the stronger the rigidity
P0-16	0x0010	Blockage detection	0~1	0	0: Enable blockage detection 1: Disable blockage detection

P1 Group: Gain Control Parameters

Parameter	Address	Meaning	Range	Default	Remarks
P1-00	0x0100	Current loop power on self-tuning	0~1	1	0: Set parameters 1: Self-tuning parameters
P1-01	0x0101	Current Kp	1~65535	1500	
P1-02	0x0102	Current Ki	1~65535	400	
P1-03	0x0103	Current kd	0~65535	0	
P1-04	0x0104	Current Kc	0~65535	0	
P1-05	0x0105	Speed Kp	1~65535	60	
P1-06	0x0106	Speed Ki	0~65535	0	
P1-07	0x0107	Position Kp	1~65535	2200	
P1-08	0x0108	Position Ki	0~65535	500	
P1-09	0x0109	Counter electromotive force	1~300	50	
P1-10	0x010A	Weak magnetic coefficient	1~100	20	
P1-11	0x010B	Inductance	1~10000	1000	
P1-12	0x010C	Startup delay	1~10	1	
P1-13	0x010D	In-position delay	0~100	3	Unit: ms
P1-14	0x010E	In-position error	0~100	4	

P2 Group: IO Configuration Parameters

Parameter	Address	Meaning	Range	Default	Remarks
P2-00	0x0200	Function definition of input port 1	0~65535	141	Bit0 ~ Bit6 function setting 0: Invalid input 1: Trigger function 2: Homing function 3: Emergency stop function 4: Forward jogging 5: Reverse jogging 6: Positive limit 7: Negative limit 8: Origin signal 9: Address 0 10: Address 1 11: Address 2 12: Address 3 13: Enable 14: Alarm clearing 15: Jogging speed 2 Bit7 polarity 0: Normally open signal 1: Normally closed signal
P2-01	0x0201	Function definition of input port 2	0~65535	14	
P2-02	0x0202	Function definition of input port 3	0~65535	2	
P2-03	0x0203	Function definition of input port 4	0~65535	3	
P2-04	0x0204	Function definition of input port 5	0~65535	6	
P2-05	0x0205	Function definition of input port 6	0~65535	7	
P2-06	0x0206	Function definition of output port 1	0~65535	6	Bit0 ~ Bit6 function setting 0: Invalid output 1: Instruction completed 2: Path completed 3: Homing completion 4: In-position completed 5: Brake output 6: Alarm output 7: SD0 8: SD1 9: SD2 10: SD3 11: SD4 12: SD5 13: SD6 15: Z-phase signal output Bit7 polarity 0: Normally open signal 1: Normally closed signal
P2-07	0x0207	Function definition of output port 2	0~65535	5	

P3 Group: Protection Function Parameters

Parameter	Address	Meaning	Range	Default	Remarks
P3-01	0x0301	Fault detection selection	0~255	255	
P3-02	0x0302	Undervoltage alarm threshold	0~20	0	Default 0 to block alarms

P4 Group: Motor Related Parameters

Parameter	Address	Meaning	Range	Default	Remarks
P4-00	0x0400	Peak current	705: 1~70 808: 1~84	705: 70 808: 84	Peak current of motor (0.1A)
P4-02	0x0402	Running direction	0~1	0	0: Counterclockwise 1: Clockwise
P4-03	0x0403	Rotation detection threshold	0~65535	1	Threshold for detecting rotation, unit: rpm

P7 Group: Communication Parameters

Parameter	Address	Meaning	Range	Default	Remarks
P7-00	0x0700	Driver station number	1~127	1	When SW1-SW5 are all OFF, this parameter is valid

P8 Group: Curve Acquisition

Parameter	Address	Meaning	Range	Default	Remarks
P8-00	0x0800	Sampling channel 1	0~65535	8001	
P8-01	0x0801	Sampling channel 2	0~65535	8003	
P8-02	0x0802	Sampling channel 3	0~65535	0	
P8-03	0x0803	Sampling channel 4	0~65535	0	
P8-04	0x0804	Sampling channel 5	0~65535	8002	
P8-05	0x0805	Sampling channel 6	0~65535	8004	
P8-06	0x0806	Sampling channel 7	0~65535	0	
P8-07	0x0807	Sampling channel 8	0~65535	0	
P8-08	0x0808	Sampling channel 9	0~65535	1008	
P8-09	0x0809	Sampling channel 10	0~65535	1009	
P8-10	0x080A	Sampling channel 11	0~65535	0	
P8-11	0x080B	Sampling channel 12	0~65535	0	
P8-12	0x080C	Sampling channel 13	0~65535	0	
P8-13	0x080D	Sampling channel 14	0~65535	0	
P8-14	0x080E	Sampling channel 15	0~65535	0	
P8-15	0x080F	Sampling channel 16	0~65535	0	
P8-16	0x0810	Sampling mode	0~8	1	0: None 1: Manual 2: Automatic 3: Conditional triggering 4: Enable triggering 5: Error triggering
P8-17	0x0811	Sampling interval	1~65535	36	
P8-18	0x0812	Sampling time	0~65535	1024	

Parameter	Address	Meaning	Range	Default	Remarks
P8-19	0x0813	Triggering channel	0~65535	0	
P8-20	0x0814	Triggering threshold low bit	0~65535	0	
P8-21	0x0815	Triggering threshold high bit	0~65535	0	
P8-22	0x0816	Triggering slope	0~65535	0	
P8-23	0x0817	Sampling proportion	0~100	100	

P9 Group: Function Parameters

Parameter	Address	Meaning	Range	Default	Remarks
P9-00	0x0900	PR control setting	0~31	0	Bit0: CTRG 0: rising edge trigger 1: double edge trigger Bit1: 0: soft limit invalid 1: soft limit valid Bit2: 0: power on homing invalid 1: power on homing valid Bit3: 0: voltage level triggering invalid 1: voltage level triggering valid (When the voltage level triggering is valid, both the Bit0 trigger method and RS485 communication trigger will be invalid)
P9-01	0x0901	Triggering register	-32768~+32767	0	Writing 0x21 to address 0x0901 can set the current point to zero
P9-02	0x0902	Positive limit (low bit)	0~65535	0	software limit positive direction position low bit, software limit is invalid when homing
P9-03	0x0903	Positive limit (high bit)	0~65535	0	software limit positive direction position high bit, software limit is invalid when homing
P9-04	0x0904	Negative limit (low bit)	0~65535	0	software limit reverse direction position low bit, software limit is invalid when homing
P9-05	0x0905	Negative limit (high bit)	0~65535	0	software limit reverse direction position high bit, software limit is invalid

Parameter	Address	Meaning	Range	Default	Remarks
					when homing
P9-06	0x0906	Homing mode	-32768~+32767	0	Bit0 homing direction 0: reverse 1: forward Bit1 whether moving to specified position after homing 0: no 1: yes Bit2~3 homing mode 0: position limit homing 1: origin homing
P9-07	0x0907	Origin position (low bit)	0~65535	0	Cannot be modified
P9-08	0x0908	Origin position (low bit)	0~65535	0	Cannot be modified
P9-09	0x0909	Origin offset position (low bit)	0~65535	0	Cannot be modified
P9-10	0x090A	Origin offset position (high bit)	0~65535	0	Cannot be modified
P9-11	0x090B	Homing high speed	1~6000	200	Homing first segment of speed, unit: rpm
P9-12	0x090C	Homing low speed	1~6000	50	Homing second segment of speed, unit: rpm
P9-13	0x090D	Homing acceleration time	1~32767	100	Homing acceleration time, in milliseconds (acceleration time required per 1000rpm)
P9-14	0x090E	Homing deceleration time	-32768~+32767	100	Homing deceleration time, in milliseconds (deceleration time required per 1000rpm)
P9-15	0x090F	Homing overtravel	0~32767	0	No alarm triggered if homing overtravel distance = 0 (unit: 0.1 revolutions); After setting the homing overtravel, even if the homing process has not been completed, the motor will stop after the set distance has been traveled
P9-16	0x0910	Limit emergency stop time	1~32767	10	Deceleration time after limit, unit: ms
P9-17	0x0911	Emergency stop time	1~32767	50	Deceleration time after emergency stop, unit: ms
P9-18	0x0912	IO combination triggering mode	0~7	0	0: IO combination trigger (default) 2: IO combination trigger, homing OK is valid 4: IO combination trigger,

Parameter	Address	Meaning	Range	Default	Remarks
					no need to homing (recommended)
P9-19	0x0913	IO combination filter	0~32767	0	Unit: ms
P9-20	0x0914	S code current output value	0~32767	0	
P9-22	0x0916	JOG speed 2	-2500~+2500	50	Unit: rpm
P9-23	0x0917	JOG speed	-2500~+2500	200	Unit: rpm
P9-24	0x0918	JOG acceleration time	0~32767	1000	Unit ms (acceleration time required per 1000rpm)
P9-25	0x0919	JOG deceleration time	0~32767	1000	Unit ms (deceleration time required per 1000rpm)
P9-26	0x091A	Command position (low bit)	-2147483648~ +2147483648	0	The current position of the command is reset to zero after homing successfully
P9-27	0x091B	Command position (high bit)	-2147483648~ +2147483648	0	The current position of the command is reset to zero after homing successfully
P9-28	0x091C	Motor position (low bit)	-2147483648~ +2147483648	0	The current position of the command is reset to zero after homing successfully
P9-29	0x091D	Motor position (high bit)	-2147483648~ +2147483648	0	The current position of the command is reset to zero after homing successfully
P9-30	0x091E	S-code output setting for path 0	-32768~+32767	0	
P9-31	0x091F	S-code output setting for path 1	-32768~+32767	0	
P9-32	0x0920	S-code output setting for path 2	-32768~+32767	0	
P9-33	0x0921	S-code output setting for path 3	-32768~+32767	0	
P9-34	0x0922	S-code output setting for path 4	-32768~+32767	0	
P9-35	0x0923	S-code output setting for path 5	-32768~+32767	0	
P9-36	0x0924	S-code output setting for path 6	-32768~+32767	0	
P9-37	0x0925	S-code output setting for path 7	-32768~+32767	0	
P9-38	0x0926	S-code output setting for path 8	-32768~+32767	0	
P9-39	0x0927	S-code output setting for path 9	-32768~+32767	0	
P9-40	0x0928	S-code output setting for path 10	-32768~+32767	0	
P9-41	0x0929	S-code output setting for path 11	-32768~+32767	0	
P9-42	0x092A	S-code output setting for path 12	-32768~+32767	0	
P9-43	0x092B	S-code output setting for path 13	-32768~+32767	0	
P9-44	0x092C	S-code output setting for path 14	-32768~+32767	0	
P9-45	0x092D	S-code output setting for path 15	-32768~+32767	0	

P10 Group: Path Configuration Parameters

Parameter	Address	Meaning	Range	Default	Remarks
P10-00+n*8	0x0A00+n*8	Motion mode path 0~15	-32768~+32767	0	Corresponding functions can be selected for different bit settings:

Parameter	Address	Meaning	Range	Default	Remarks
					Bit0-3: TYPE 0: no action 1: positioning 2: speed operation 3: homing Bit4: INS 0: can be interrupted (default) 1: shield the interruption Bit5: OVLP 0: Non overlapping 1: Overlap Bit6: 0: aboslute position 1: relative position Bit7: (Only effective in speed mode, i.e. Bit0-3=2) 0: reverse operation 1: forward operation Bit8-11: When the value is 0-15, jump to the corresponding path Bit14: JUMP 0: not jump 1: jump
P10-01+n*8	Address	Position (low bit)	-65535~65535	0	Bit 31 0: positive direction 1: negative direction
P10-02+n*8	0x0A02+n*8	Position (high bit)	-32768~3276	0	
P10-03+n*8	0x0A03+n*8	Operation speed	-6000~+6000	0	Operation speed, rpm
P10-04+n*8	0x0A04+n*8	Acceleration time	1~32767	100	Unit ms (acceleration time required per 1000rpm)
P10-05+n*8	0x0A05+n*8	Deceleration time	1~32767	100	Unit ms (deceleration time required per 1000rpm)
P10-06+n*8	0x0A06+n*8	Pause time	0~65535	0	The pause time after the instruction stops
Note: n is the value of path P, P=0~15.					

U0 Group Parameters

Parameter	Address	Content	Remarks
U0-01	0x1001	Given speed	rpm
U0-25	0x1019	Given electrical angle	
U0-26	0x101A	A-phase feedback current	mA
U0-27	0x101B	B-phase feedback current	mA
U0-28	0x101C	Reference feedback current	mA
U0-29	0x101D	Given current of phase A	mA

Parameter	Address	Content	Remarks
U0-30	0x101E	Given current of phase B	mA
U0-31	0x101F	Reference given current	mA
U0-32	0x1020	Bus voltage	V
U0-35	0x1023	Motor position (low bit)	
U0-36	0x1024	Motor position (high bit)	
U0-37	0x1025	Current status	Drive in path state: displays the previously set S code
U0-38	0x1026	Error status	0x102: homing overtravel 0x200: path software limit 0x300: jogging limit 0x400: IO configuration conflict
U0-39	0x1027	Triggering status	0x10P（P: 0~F）
U0-40	0x1028	PR mode IO status	Bit0~Bit15: Using condition of input function signals

U1 Group Monitoring Parameters

Parameter	Address	Meaning	Remarks
U1-00	0x1100	Current alarm code	
U1-01	0x1101	A-phase current at the time of alarm occurrence	
U1-02	0x1102	B-phase current at the time of alarm occurrence	
U1-03	0x1103	Reference current when an alarm occurs	
U1-04	0x1104	Bus voltage when an alarm occurs	
U1-05	0x1105	Position deviation when alarm occurs	
U1-06	0x1106	Speed value at the time when alarm occurs	
U1-07	0x1107	The time when the alarm occurred	
U1-08	0x1108	The time when the alarm occurred	
U1-09	0x1109	The number of error codes for this operation	
U1-10	0x110A	The 2nd recent alarm code	
U1-11	0x110B	The 3rd recent alarm code	
U1-12	0x110C	The 4th recent alarm code	
U1-13	0x110D	The 5th recent alarm code	
U1-14	0x110E	The 6th recent alarm code	
U1-15	0x110F	Reserved	
U1-16	0x1110	Reserved	
U1-17	0x1111	Reserved	
U1-18	0x1112	Reserved	
U1-19	0x1113	Reserved	
U1-20	0x1114	Reserved	
U1-21	0x1115	Reserved	

U2 Group Monitoring Parameters

Parameter	Address	Meaning	Remarks
U2-00	0x1200	Number of power on times	
U2-01	0x1201	Machine type	
U2-02	0x1202	Series	

Parameter	Address	Meaning	Remarks
U2-03	0x1203	Model	
U2-04	0x1204	Date of production	Year
U2-05	0x1205	Date of production	Month
U2-06	0x1206	Date of production	Day
U2-07	0x1207	Software version	
U2-08	0x1208	Hardware version	
U2-09	0x1209	Power on operation time	Hour
U2-10	0x120A	Power on operation time	Minute
U2-11	0x120B	Power on operation time	Second
U2-12	0x120C	Equipment serial number	Low 16-bit
U2-13	0x120D	Equipment serial number	High 16-bit
U2-14	0x120E	Firmware generation date: year	
U2-15	0x120F	Firmware generation date: month/day	
U2-16	0x1210	Firmware generation date: hour/minute	

7 Troubleshooting

Flashing Information	Fault Description	Possible Reasons and Solutions
Flashes 1 time	Overcurrent or short circuit	Check if the power cable is short circuited
Flashes 2 times continuously	Overvoltage	Check if the power supply voltage exceeds the alarm threshold
Flashes 3 times continuously	Undervoltage	Check if the power supply voltage is lower than the value of P3-02, default to 0 to block this alarm
Flashes 4 times continuously	Motor open circuit or poor contact	Check if the power cable is properly installed or disconnected
Flashes 6 times continuously	Motor parameter self-tuning error	Use the upper computer software to close the self-tuning function
Flashes 15 times continuously	PR alarm	Process according to the alarm information in the PR status bar (U0-38)

- The overvoltage threshold for DP3SL-705 is DC60V, while for DP3S-808A it is AC106V and DC150V;
- Since the drive does not have reverse polarity protection for the power supply, please double-check that the power supply positive and negative connections are correct before powering on.

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