



# **User Manual of Profile Steel Double Pendulum Shaft (ACU03-PC-H01)**

Product Description



# Foreword

Dear Users:

Welcome to use the Profile Steel Double Pendulum Shaft by Shenzhen Ospri Intelligent Technology Co., Ltd. It is our great honor to gain your trust in our products.

In order to make you have an overall view of the product, convenient for your use, we specifically provide the user manual for you, including product characteristics, structural feature, technical feature, direction for use, maintenance, etc. It's an essential guide when you use this product.

Please read the user manual carefully before use. I'm sure it will be helpful for you to use this product. In addition, if you have any questions during use, please contact us, and we will serve you wholeheartedly.

Declaration:

The contents of User Manual are protected by the Copyright Law. Without the approval of Shenzhen Ospri Intelligent Technology Co., Ltd, any organization or individual shall not copy or tamper it by any means and forms.

In order to ensure your safety and the product works normally, please read the guide book carefully before using.

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# Chapter 1 Overview

## 1.1 Product Parameters

① Product parameters, as shown in Table 1.0.

| Profile Steel Double Pendulum Shaft Parameters |                 |                                        |         |
|------------------------------------------------|-----------------|----------------------------------------|---------|
| Suitable cutting head                          | LCH/LC81/LCM15B |                                        |         |
| A-axis, C-axis rated power                     | 400W            | A-axis, C-axis positioning accuracy    | 1arcmin |
| A-axis, C-axis rated torque                    | 100N·m          | U-axis repetitive positioning accuracy | <0.01mm |
| A-axis, C-axis rated speed                     | 37r/min         | U-axis power                           | 200W    |
| A-axis, C-axis reduction ratio                 | 81              | U-axis stroke                          | 60mm    |
| A-axis range of action                         | ±100°           | U-axis maximum speed                   | 250mm/s |
| C-axis range of action                         | ±200°           | Weight                                 | 13.5Kg  |

Table 1.0

## 1.2 Cautions

- ① Please wear specialized fiber laser safety goggles when profile steel double pendulum shaft is used in conjunction with the cutting head to ensure personal safety
- ② Please avoid touch and collision when profile steel double pendulum shaft is running to prevent mechanical injury to ensure personal safety.
- ③ Please wear personal protective equipment when processing products using laser to prevent personal injury caused by human body.

## Chapter 2 Structural Features

### Brief Description of Product Structure

Brief description of product structure, as shown in Figure 2.0.

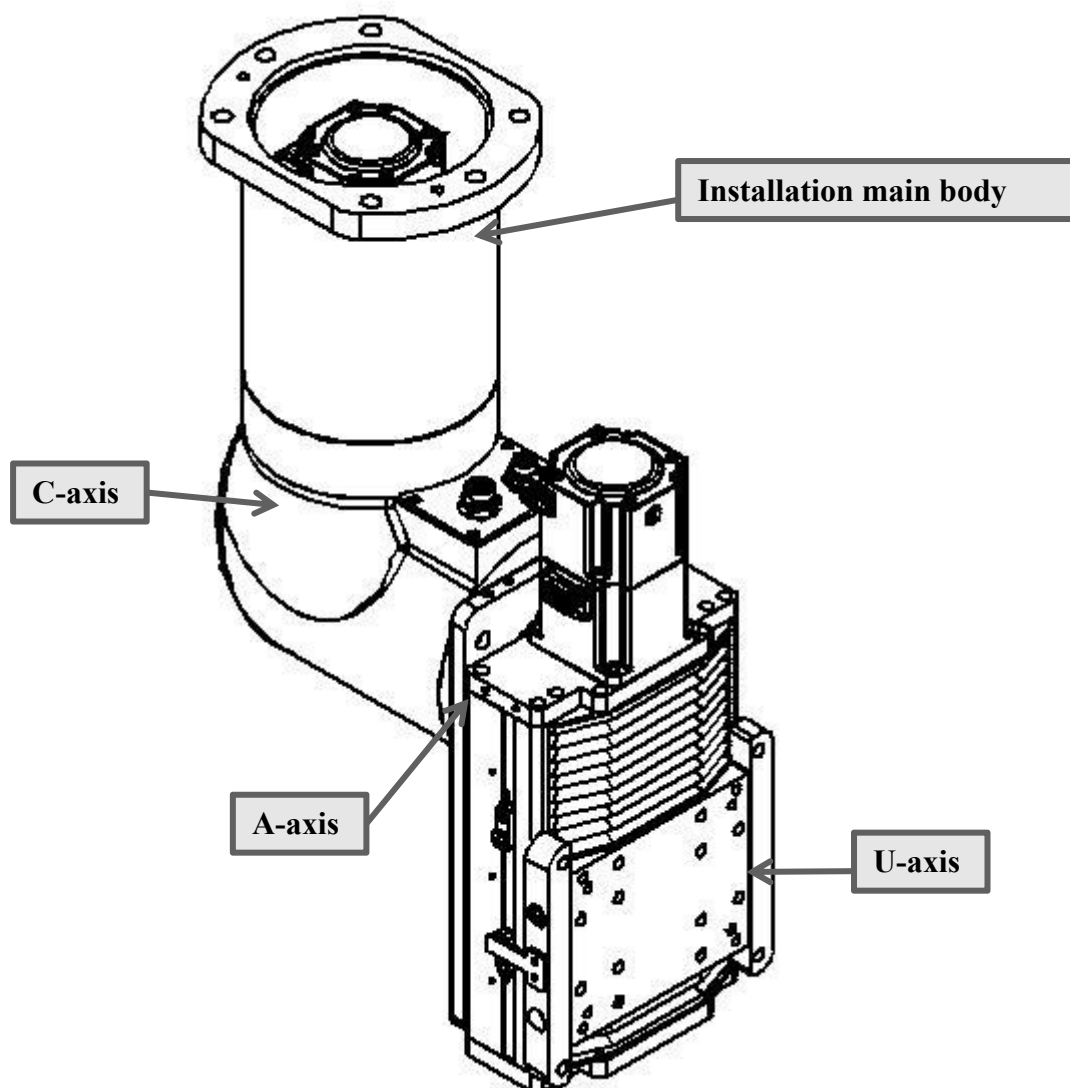


Figure 2.0

Brief description of range of motion, as shown in Figure 2.1.

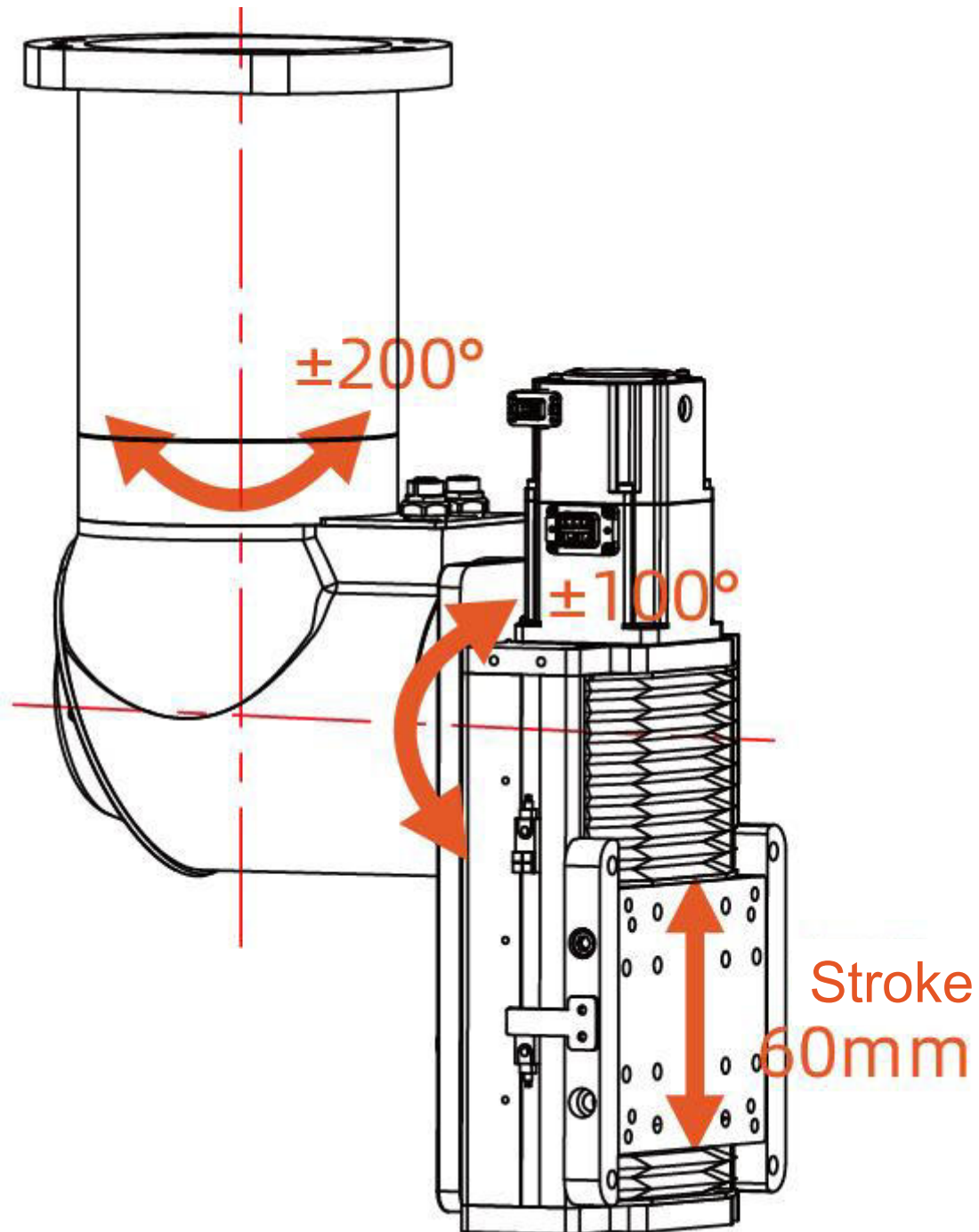


Figure 2.1

## Chapter 3 Product Installation

### 3.1 Installation of Profile Steel Double Pendulum Shaft (ACU03-PC-H01)

ACU Axis Dimension Diagram

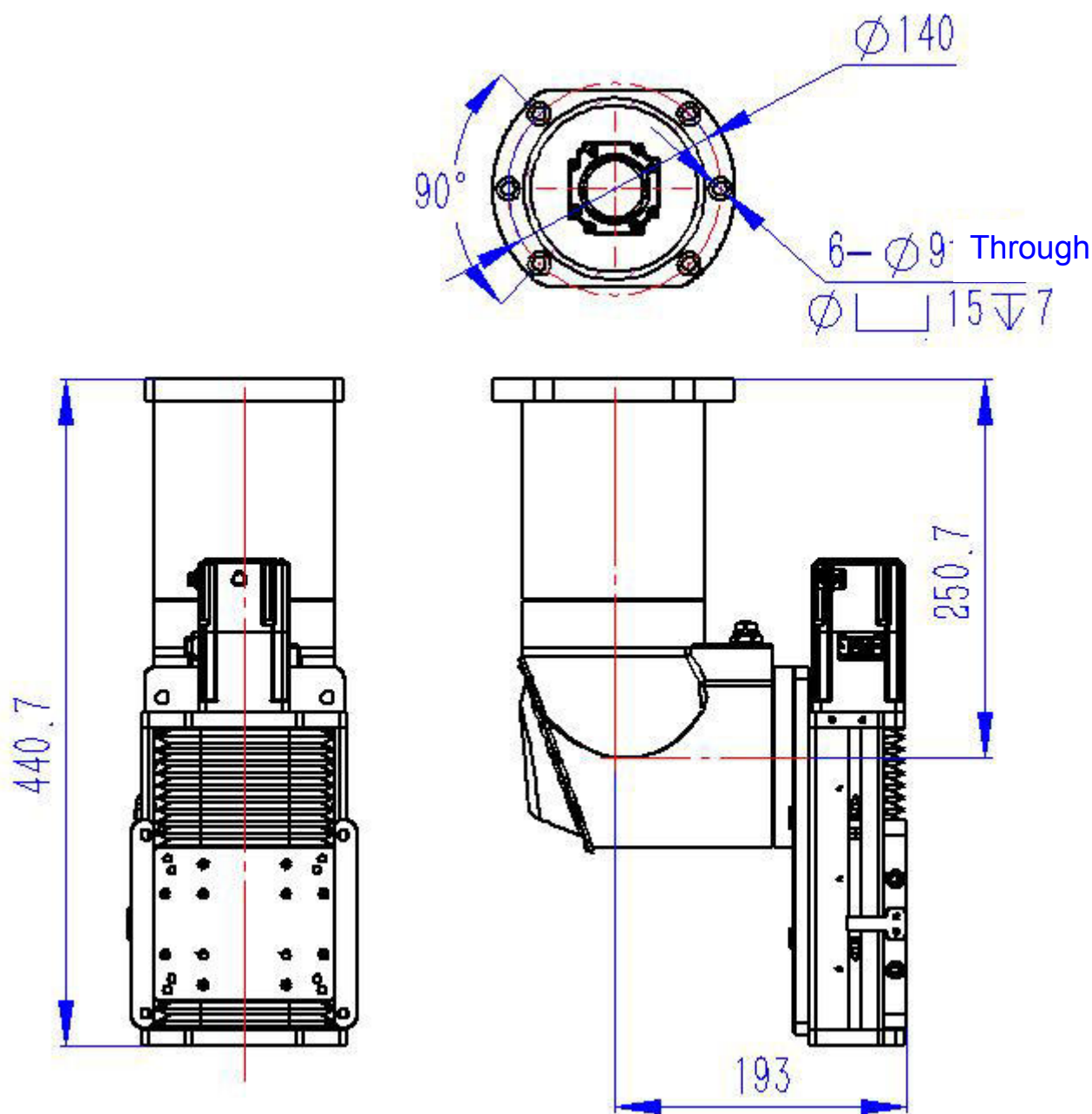
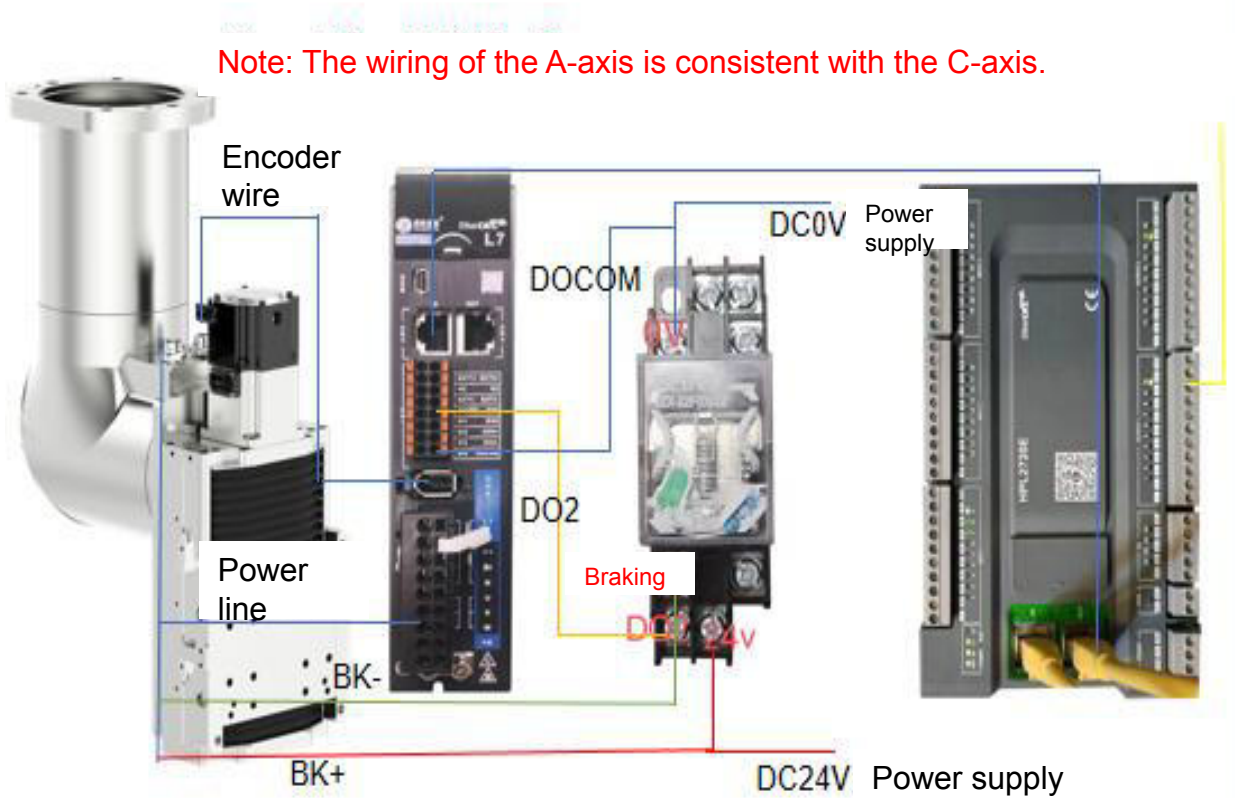


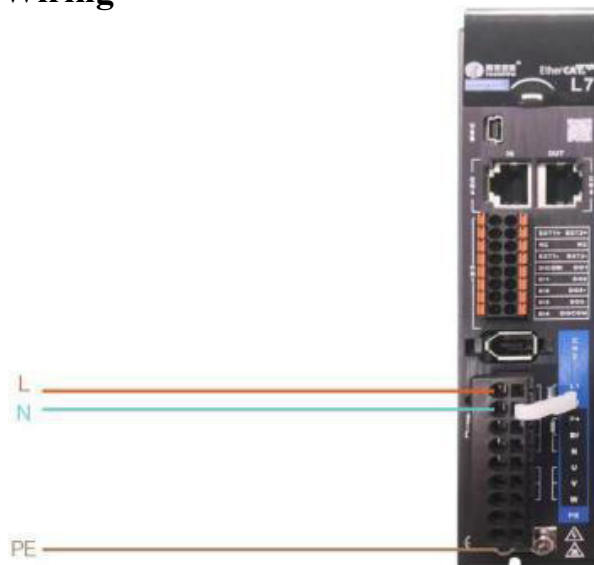
Figure 3.1

## 3.2 Wiring Definition of Profile Steel Double Pendulum Shaft (ACU03-PC-H01)

### 3.2.1 Overview of Profile Steel Double Pendulum Shaft Wiring



### 3.2.2 Servo Power Wiring



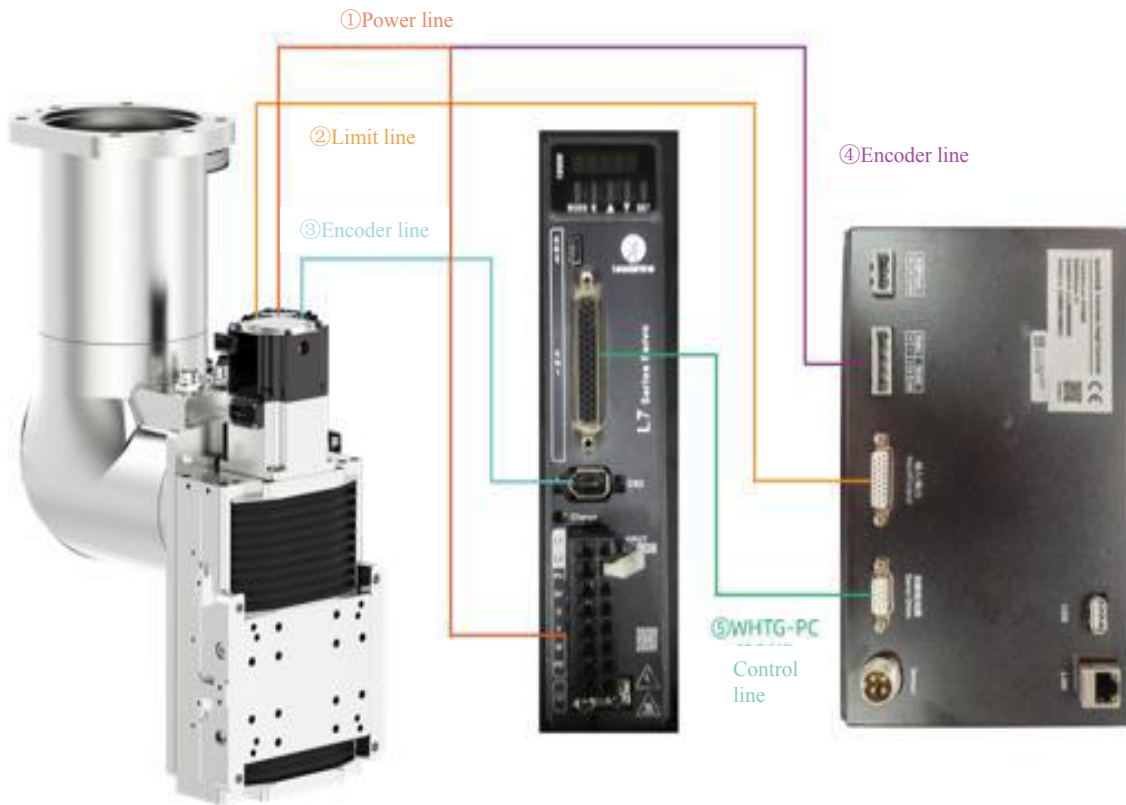
Driver power wiring (single phase 220V)

### 3.2.3 A/C Axis Bus Drive Parameters

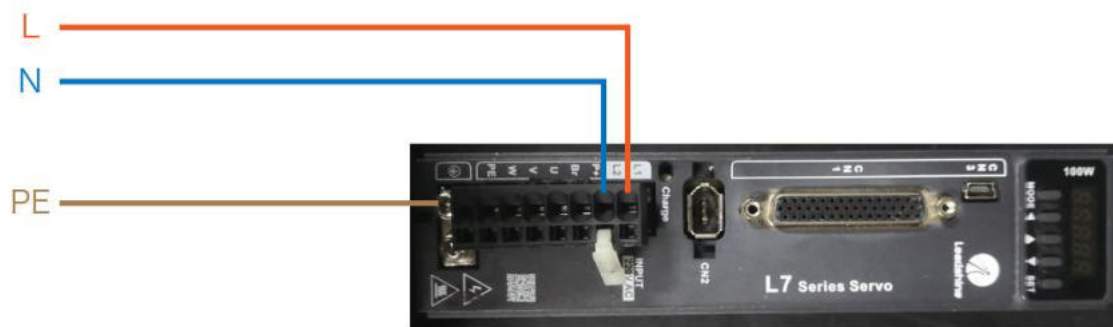
| Parameter Index | Parameter Value | Parameter Content                                      |
|-----------------|-----------------|--------------------------------------------------------|
| PA001           | 9               | Control Mode                                           |
| PA003           | 18              | Rigidity class                                         |
| PA004           | 150             | Inertia Ratio                                          |
| PA006           | 1               | Motor Rotation Direction                               |
| PA008           | 10000           | Number of pulses required per circle of motor rotation |
| PA011           | 2500            | Number of output pulses per circle of motor rotation   |
| PA023           | 5               | Slave                                                  |
| PA024           | 1               | Slave Source                                           |

Note: The motor encoder has 23 bits, with a reduction ratio of 81; for first use, change PA015 to 1 to activate absolute mode; after restarting the driver, change PA015 to 9 to reset the multi-turn position.

### 3.2.4 Follow-up U-axis Wiring Overview (Analog Version)



### 3.2.5 U-axis Servo Power Wiring



Driver power wiring (single phase 220V)

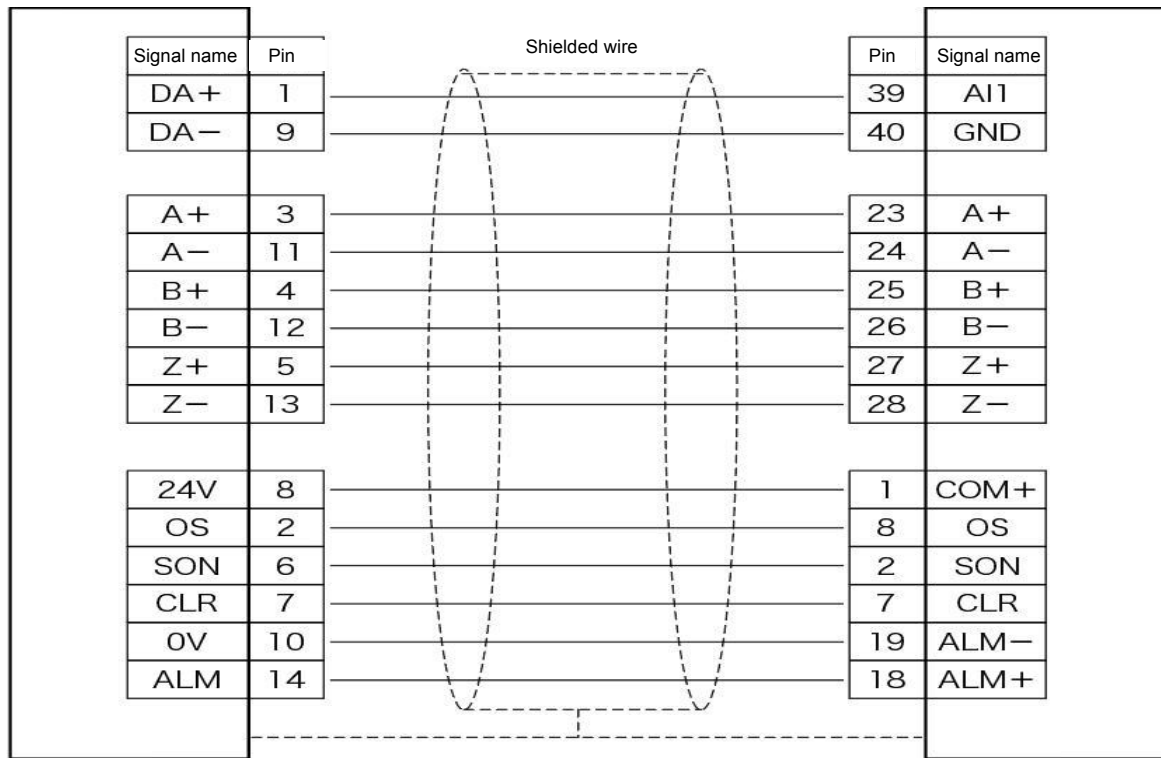
### 3.2.6 Motor Parameters

U-axis screw pitch is 5mm, pulses per revolution are 10,000.

### 3.2.6.1 WHTG-PC Wiring

#### WHTG servo control interface

#### PC control interface

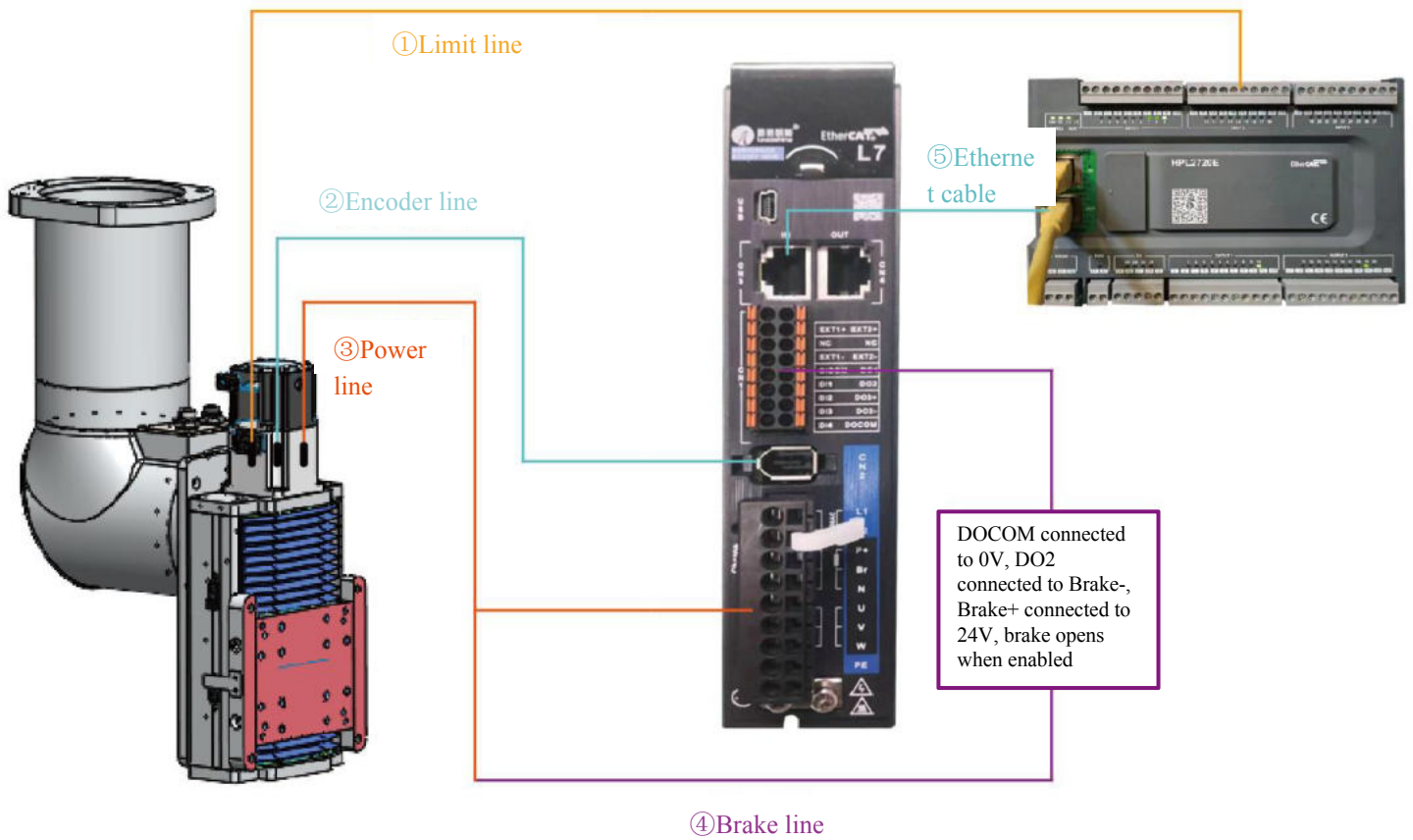


### 3.2.6.2 WHTG-PC Parameter Settings

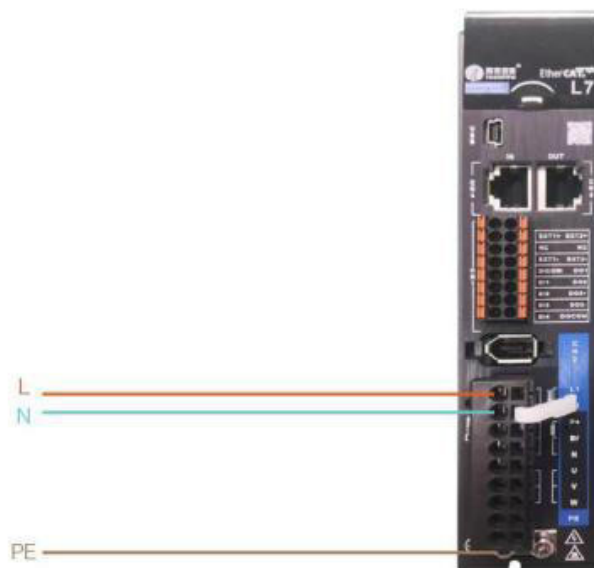
| Parameter number | Parameter value | Parameter content                              |
|------------------|-----------------|------------------------------------------------|
| PA001            | 1               | Speed mode                                     |
| PA003            | 18              | Rigidity level                                 |
| PA004            | 150             | Inertia ratio                                  |
| PA008            | 10000           | Number of pulses required per motor revolution |
| PA011            | 2500            | Output pulse number per motor revolution       |
| PA012            | 1               | Encoder direction                              |
| PA300            | 0               | Speed mode selection                           |
| PA303            | 1               | Motor rotation direction                       |
| PA302            | 500             | 1V corresponding speed                         |
| PA312            | 0               | Acceleration time                              |
| PA313            | 0               | Deceleration time                              |
| PA315            | 1               | Zero speed function selection                  |
| PA400            | 3               | Servo enable                                   |
| PA402            | 91              | Zero speed clamp                               |

During inching, if the system displays an alarm, but the drive has no alarm, change parameter value of PA402 to 11

### 3.2.7 Follow-up U-axis Wiring Overview (EtherCAT Bus Version)



### 3.2.8 Servo Power Wiring



Driver power wiring (single phase 220V)

### 3.2.9 Drive Parameters

| Parameter Index | Parameter Value | Parameter Content                              |
|-----------------|-----------------|------------------------------------------------|
| PA001           | 9               | Control mode                                   |
| PA003           | 18              | Rigidity level                                 |
| PA004           | 150             | Inertia ratio                                  |
| PA006           | 1               | Motor rotation direction                       |
| PA008           | 10000           | Number of pulses required per motor revolution |
| PA011           | 2500            | Output pulse number per motor revolution       |
| PA023           | 5               | Slave                                          |
| PA024           | 1               | Slave source                                   |

Note: Motor encoder has 23 bits, screw pitch is 5mm.



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