

EYouServoStudio 上位机用户手册

EYouServoStudio Host User Manual

V1.0



版本变更说明

Version Change Description

EYouServoStudio 上位机用户手册版本变更说明				
EYouServoStudio Host User Manual Version Update Notice				
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一、上位机使用概述

Overview of Host Computer Usage

1.1 上位机简介

Overview of Host Computer Usage

EYouServoStudio 是意优关节串口调试上位机，是一款专为关节设计的调试与控制软件。该软件通过串口通信协议与谐波关节硬件连接，为用户提供直观的设备状态监控、参数配置和运动控制功能。

EYouServoStudio is the upper computer serial debugging tool developed by EYou for joint modules. It is a debugging and control software specifically designed for the joints. This software connects with the harmonic joint hardware through the serial communication protocol, providing users with intuitive device status monitoring, parameter configuration, and motion control functions.

1.2 上位机安装方法

Installation Method of Host Computer

点击安装包进行安装，允许其对计算机的更改，如果在浏览器中无法安装，点击保留文件即可，安装过程按下图操作。

Click the installation package to proceed. Allow changes to your computer. If the installation fails in the browser, click Keep files. Follow the steps below during installation.

▼ 昨天


 PHU&FHU_EYouServoStudio_Installe...	2026/2/25 17:13	应用程序	17,606 KB
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图 1-1 上位机的安装步骤 1

Figure 1-1: Installation Step 1 for the Host Computer

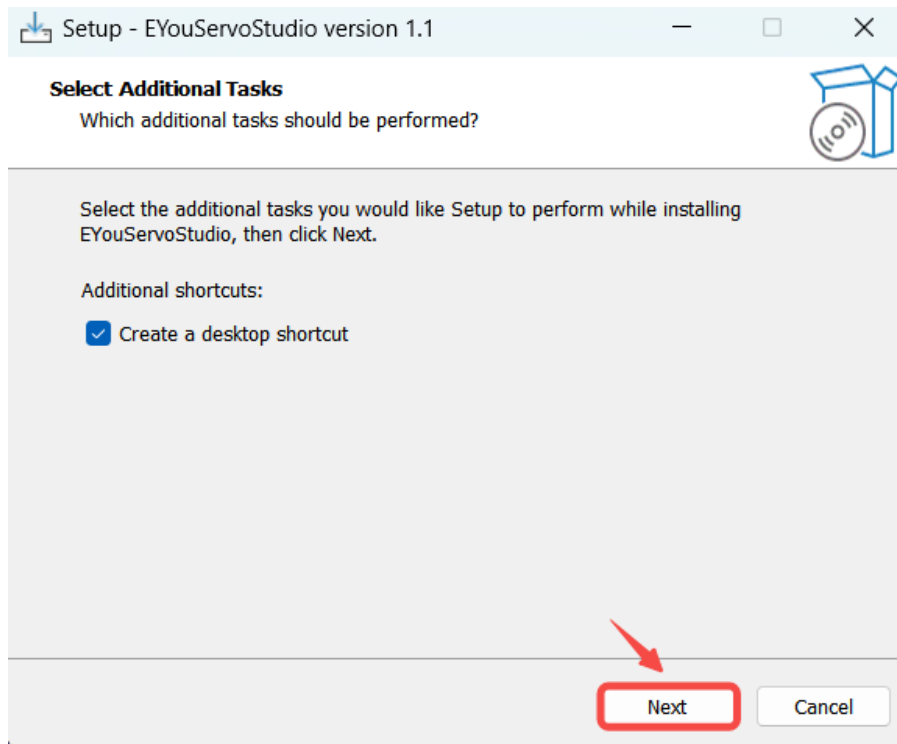


图 1-2 上位机安装步骤 2

Figure 1-2: Installation Step 2 for the Host Computer

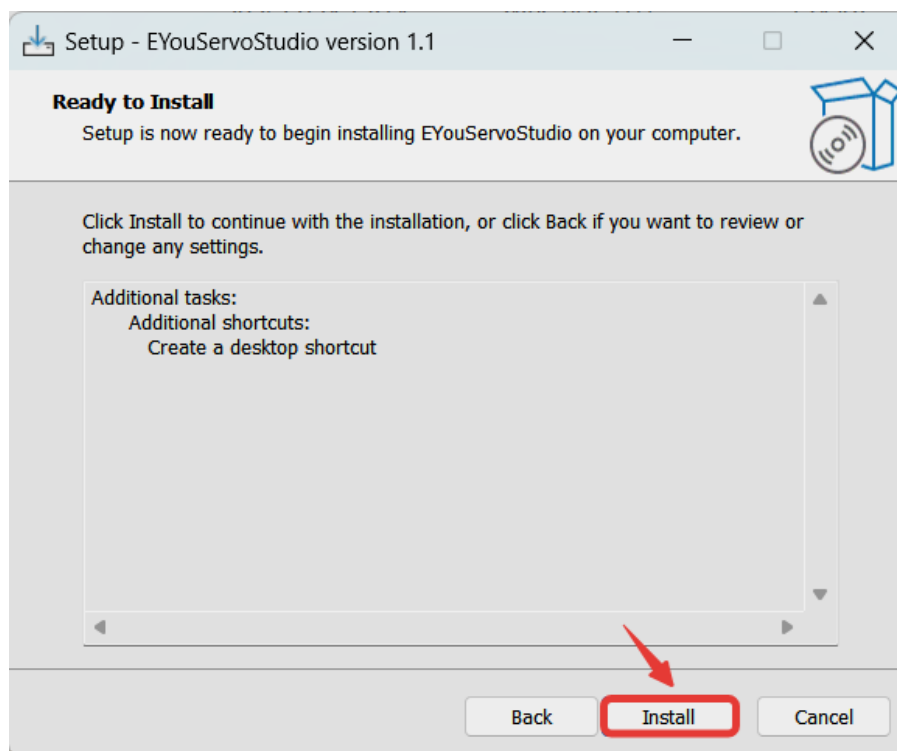


图 1-3 上位机的安装步骤 3

Figure 1-3: Installation Step 3 for the Host Computer

1.3 帮助文档的使用说明

Help document usage instructions

您可以通过阅读帮助文档获取有关上位机的相关信息，文档中包含软件使用说明、驱动安装、主界面、参数、调试、故障等信息，使用手册也将对相关信息进行详细说明。

You can read the help documentation for information about the host computer. The document includes software usage instructions, driver installation, main interface, parameters, debugging, and troubleshooting. The user manual also provides detailed explanations of these topics.

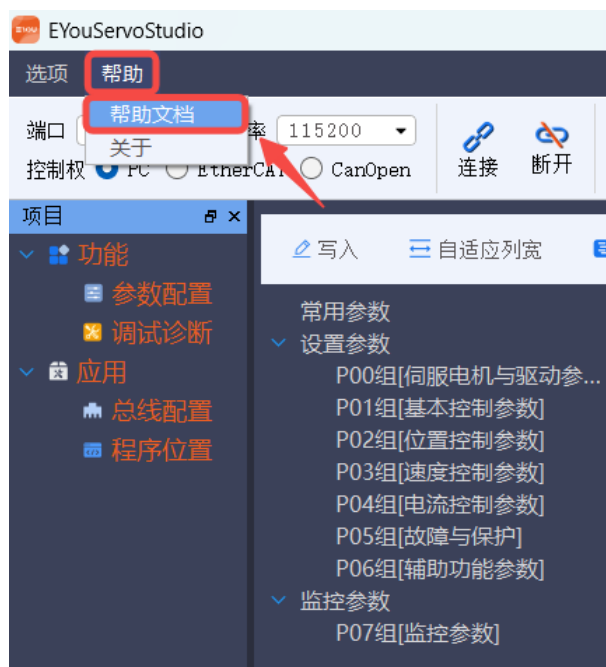


图 1-4 帮助文档的使用说明

Figure 1-4 Help Document Usage Instructions

二、上位机功能介绍

Host Project Bar Introduction

2.1 上位机项目栏目介绍

Introduction to the Host Computer Project Section

上位机的项目栏目共包括四项，分别是参数配置，调试诊断，总线配置，程序位置。

The project column of the host computer includes four items, namely parameter configuration, debugging and diagnosis, bus configuration, and program location.

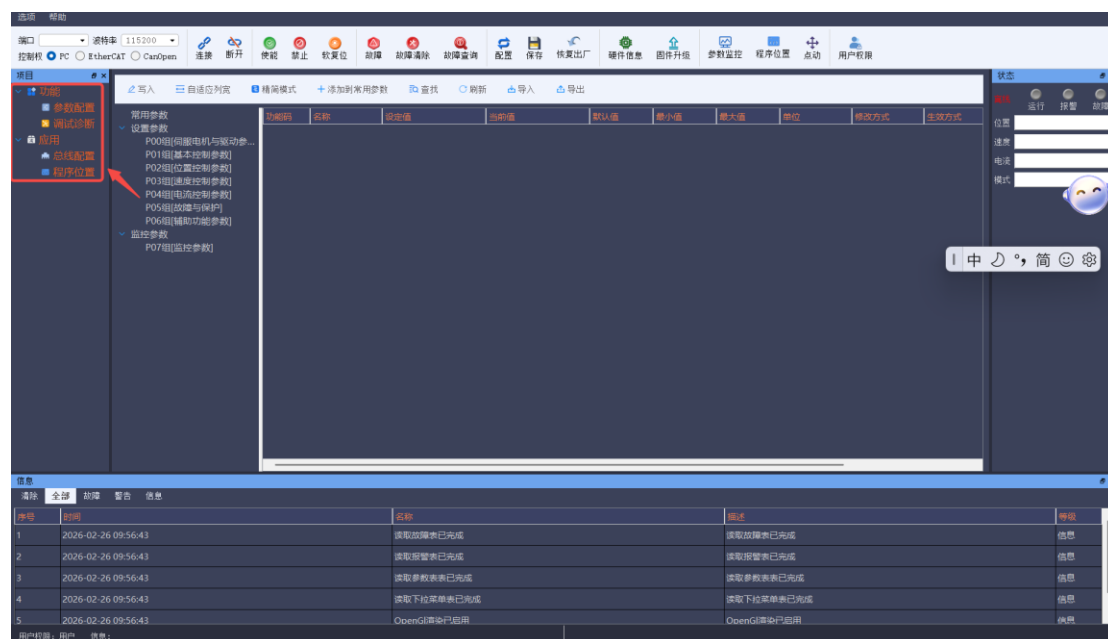


图 2-1 上位机项目栏目介绍

Figure 2-1: Introduction to the Host Project Column

2.1.1 参数配置

Parameter configuration

参数配置：是关节使用到的参数列表，部分参数可以进行直接修改即生效，示例见下图所示，新参数设置完成后，按回车键，参数即写入成功，参数分为 P00-P07 八个分组，出厂默认参数：P00（伺服电机参数）、P01（基本控制参数）、P02（位置控制参数）、P03（速度控制参数）、P04（电流控制参数）、P05（故

障与保护)、P06(辅助功能参数)、P07(监控参数)。

Parameter configuration: This is the list of parameters used by the joint. Some parameters can be modified directly and take effect immediately, as shown in the figure below. After completing the new parameter settings, press Enter to save the parameters successfully. The parameters are divided into eight groups:

P00-P07.Factory Default Parameters: P00 (Servo Motor Parameters), P01 (Basic Control Parameters), P02 (Position Control Parameters), P03 (Speed Control Parameters), P04 (Current Control Parameters), P05 (Faults and Protection), P06 (Auxiliary Functions), P07 (Monitoring Parameters).

功能码	名称	设定值	当前值	默认值	最小值	最大值	单位	修改方式	生效方式
P00.00	电机型号选择			0	-1	22	-	停机修改	立即生效
P00.02	电机名称			0	0	4294967295	-	停机修改	立即生效
P00.05	电机额定功率			63	0	2000	W	停机修改	立即生效
P00.06	电机额定转速			3000	0	6000	rpm	停机修改	立即生效
P00.07	电机额定转矩			0.2	0	100	Nm	停机修改	立即生效
P00.08	电机额定电流			2.97	0	150	Apeak	停机修改	立即生效
P00.09	电机最高转速			6000	0	9000	rpm	停机修改	立即生效
P00.0A	电机最大转矩			0.5	0	100	Nm	停机修改	立即生效
P00.0B	电机最大电流			7.92	0.1	300	Apeak	停机修改	立即生效
P00.0C	电机转动惯量			0.49	0	2000000	kg*cm^2	停机修改	立即生效
P00.0F	负载转动惯量比			1	0	600	倍	任意修改	立即生效
P00.11	电机级对数			10	1	30	-	停机修改	配置生效
P00.12	电机相电感			0.358	0	1000	mH	停机修改	立即生效
P00.13	电机相电阻			11.8	0	75	Ω	停机修改	立即生效
P00.14	电机反电势系数			6.8	0	500	Vrms/krpm(度)	停机修改	立即生效
P00.15	电机转矩系数			0.06734	1	30	Nm/Apeak	停机修改	立即生效

图 2-2 参数配置

Figure 2-2-Parameter Configuration

2.1.2 调试诊断

Debug

调试诊断：包含运动、通道配置、测量、数据点。这部分是主要控制电机的功能，通过控制电机的运动模式数据，对运动进行实时检测，详细使用方法见后续章节，功能部分见下图所示。

Debugging and Diagnosis: Includes motion, channel configuration, measurement, and data points. This section controls the motor's primary functions by monitoring real-time motion through motor movement mode data. For detailed usage, refer to subsequent chapters. The functional section is shown in the figure below.



图 2-3 调试诊断

Figure 2-3 Debugging and Diagnosis

2.1.3 总线配置

Bus configuration

总线配置：控制权切换成 EtherCAT，由主站控制器控制运行，从站可进行 SDO 参数配置与读写，详细使用方法见下图所示。

Bus configuration: The control authority is transferred to EtherCAT, with the master station controller managing operations. Slave stations can configure and read/write SDO parameters, as detailed in the diagram below.

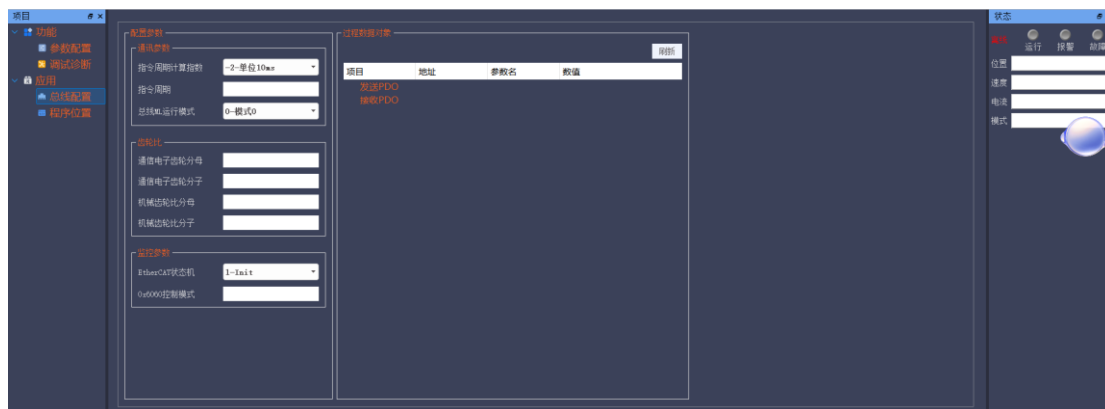


图 2-4 总线配置

Figure 2-4 Bus Configuration

2.1.4 程序位置

Program location

程序位置：控制电机的往复运动，详细使用方法见下图程序位置介绍示意：

Program position: controls the motor's reciprocating motion. For detailed usage, see the schematic diagram below.

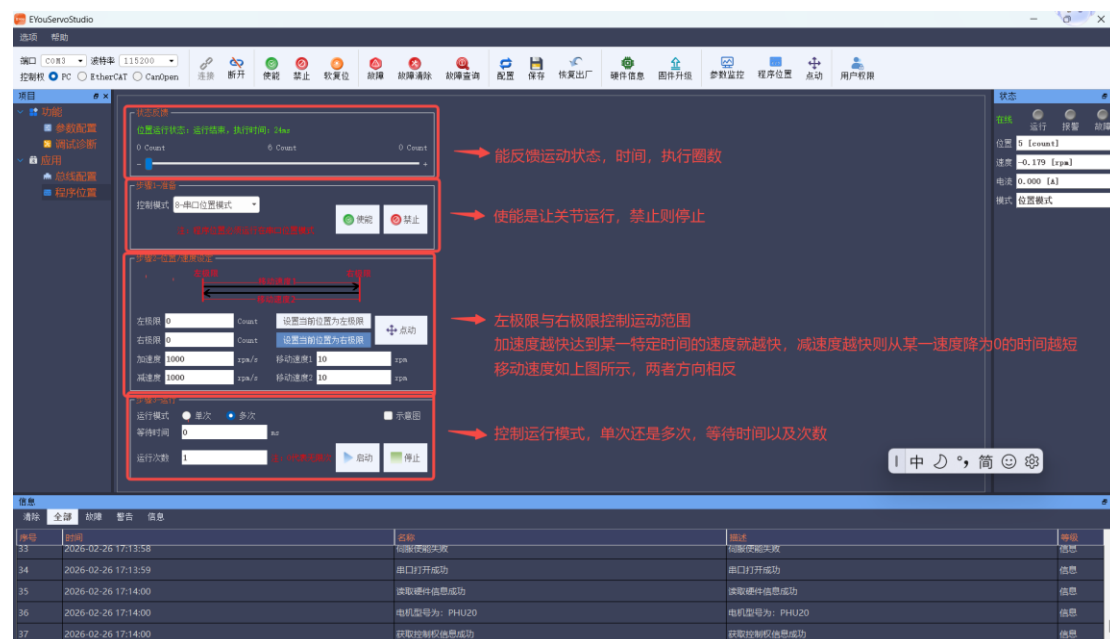


图 2-5 程序位置

Figure 2-5 Program Location

三、上位机的使用

The use of the host computer

3.1 上位机连接

Upper computer connection

打开上位机配置端口，点击连接，控制权选择 PC，连接完成后会在信息框进一步显示。

Open the host computer's configuration port, click Connect, select PC as the control device, and the connection status will be displayed in the information box.

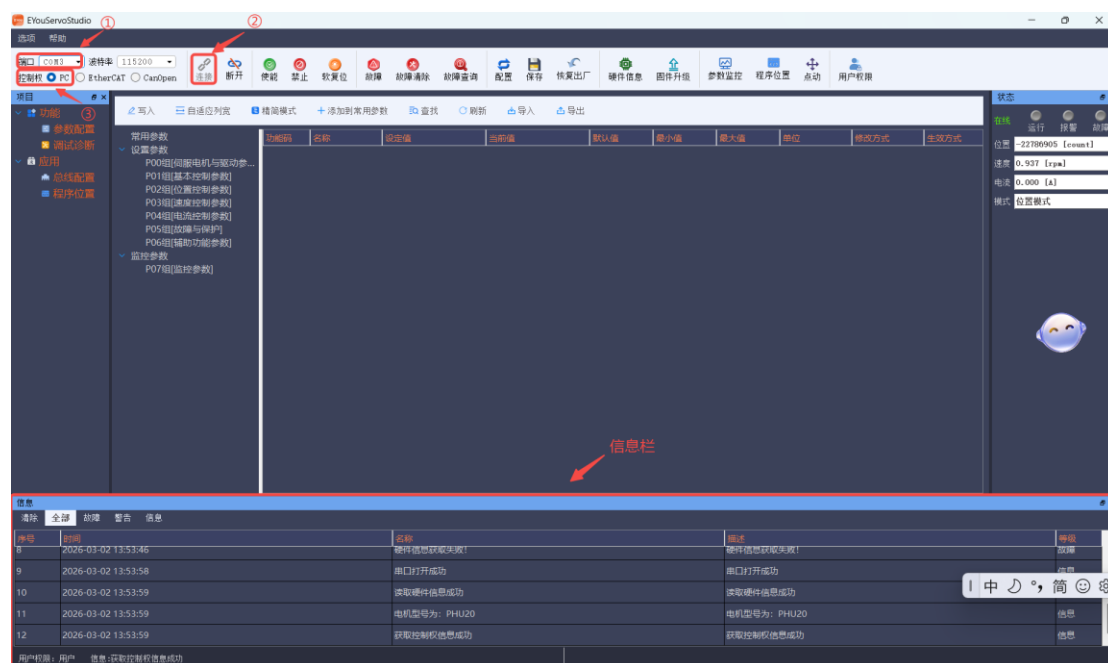


图 3-1 上位机连接

Figure 3-1 PC connection

3.2 零点标定与回零流程

Zero Calibration and Zeroing Process

串口上位机零点标定是确保关节当前位置为零点。请按照指示操作：

Zero calibration ensures the current position of the joint is set to zero. Please follow the instructions:

①位置控制参数 P02.62（回零模式）默认 35 设置当前位置为零位；

Position control parameter P02.62 (zeroing mode) default setting 35 will set the current position to zero.

②位置控制参数 P02.63（回零启动），双击即可设置当前位置为零位。

Position control parameter P02.63 (zeroing start) allows you to set the current position to zero with a double-click.

③点击上方的保存按钮即可保存设置。

Click the Save button above to save your settings.

SDO 控制：设置模式 $0x6060=6$ ， $0x6040=0x10$ ，然后当前位置就是 0 点了，保存指令 $0x2130=1$ 。

SDO control: set mode $0x6060=6$, $0x6040=0x10$, then the current position will be zero, and save the command $0x2130=1$.

功能码	名称	设定值	当前值	默认值	最小值	最大值	单位	修改方式	生效方式	COE地址
P02.3C	第2位置环速度...	1000	1000	1000	100	8000	Hz	任意修改	立即生效	0x223C00
P02.3D	第2位置环转矩...	0.0000	0.0000	0	0	2	-	任意修改	立即生效	0x223D00
P02.3E	第2位置环转矩...	1000	1000	1000	100	8000	Hz	任意修改	立即生效	0x223E00
P02.4B	机械原点偏移量	0	0	0	0	4294967...	Count	任意修改	立即生效	0x224800
P02.49	位置环位置反馈...	0	0	0	0	1	-	停机修改	立即生效	0x224900
P02.4A	位置偏差过大阈...	4194304	4194304	4194304	0	4294967...	Count	任意修改	立即生效	0x6065/224A00
P02.4B	位置偏差过大时...	1	1	1	0	1000	ms	停机修改	立即生效	0x224800
P02.4D	定位完成判断阈...	0	0	0	0	1	-	任意修改	立即生效	0x224D00
P02.4E	定位完成阈值迟...	0	0	0	0	2000	Count	任意修改	立即生效	0x224E00
P02.50	定位完成阈值	100	100	100	0	4294967...	Count	任意修改	立即生效	0x6067/225000
P02.51	定位完成窗口	1	1	1	0	1000	ms	任意修改	立即生效	0x6068/225100
P02.60	回零错误检测阈...	1-忽略未使用的...	1-忽略未使用的限...	0	0	1	-	任意修改	立即生效	0x226000
P02.62	回零模式	35-声明当前位置为...	35-声明当前位置为...	1	0	35	-	任意修改	立即生效	0x6098/226200
P02.63	回零启动命令	启动		0	0	1	-	任意修改	立即生效	NA
P02.64	回零加速度	4000	4000	4000	0	1000000	rpm/s	任意修改	立即生效	0x609A/226400
P02.65	回零速度1	100	100	100	0	6000	rpm	任意修改	立即生效	0x609901/2265
P02.66	回零速度2	20	20	20	0	6000	rpm	任意修改	立即生效	0x609902/2266
P02.67	机械偏移量	0	0	0	-2147483...	2147483...	Count	停机修改	立即生效	0x607C/226700
P02.68	机械偏移量移动...	0-机械原点偏移量...	0-机械原点偏移量...	0	0	1	-	停机修改	立即生效	0x226800
P02.69	回零运行最大时...	0	0	0	0	3000000	ms	任意修改	立即生效	0x226900
P02.68	回零完成等待时...	1000	1000	1000	100	10000	ms	任意修改	立即生效	0x226800

图 3-2 零点标定与回零流程

Figure 3-2: Zero Point Calibration and Reset Procedure

3.3 关节调试诊断

Joint adjustment and diagnosis



图 3-3 关节调试与诊断

Figure 3-3 Joint Adjustment and Diagnosis

3.3.1 运动控制模块介绍

Introduction to Motion Control Module

在运动中选择运动模式，运动模式分为位置、速度、电流、力控（力控传感器版本可用）模式，各模式使用方法如下。所有的模式都要在控制端的 PC 模式下运行。

Select the motion mode during operation. The modes include position, speed, current, and force control (force sensor version available). The usage instructions for each mode are as follows. All modes must be operated in PC mode on the control terminal.

3.3.1.1 位置模式

Position mode

位置模式控制关节运动的绝对位置，即通过控制具体的位移量来控制电机的运动，可以调整达到目标速度的加速度与减速度的参数来控制运动状态。指令 FIR 滤波是专门对上位机下发的位置/速度指令进行平滑处理的数字滤波器。

The absolute position of the joint is controlled by the position mode, that is, the movement of the motor is controlled by the specific displacement, and the acceleration and deceleration parameters to reach the target speed can be adjusted to control the motion state. FIR filter is a digital filter which is specially used to smooth the position and speed command issued by the host computer.

使用方法:

usage method :

① 点击使能;

Click enable;

② 运动控制选项卡: 运行模式选择位置模式;

Motion control tab: Select position mode for the operating mode;

③ 运行方式: 增量、绝对、往复 (增量: 相对于当前位置移动的偏移量,

绝对: 运动到绝对的位置点, 往复: 当前位置与目标位置之间往返运动);

Running mode: Incremental, Absolute, or Repetitive (Incremental: Movement offset relative to the current position, Absolute: Move to an absolute position,

Repetitive: Back-and-forth motion between current and target positions);

④ 移动距离: 脉冲数;

Distance: Pulse count;

⑤ 速度与加速度: 给定允许的速度与加速度;

Speed and acceleration: Specify the allowed speed and acceleration;

⑥ 运行与停止: 点击运行即可运动, 停止则会停止运行。

Run and Stop: Click run to move, click stop to halt movement.

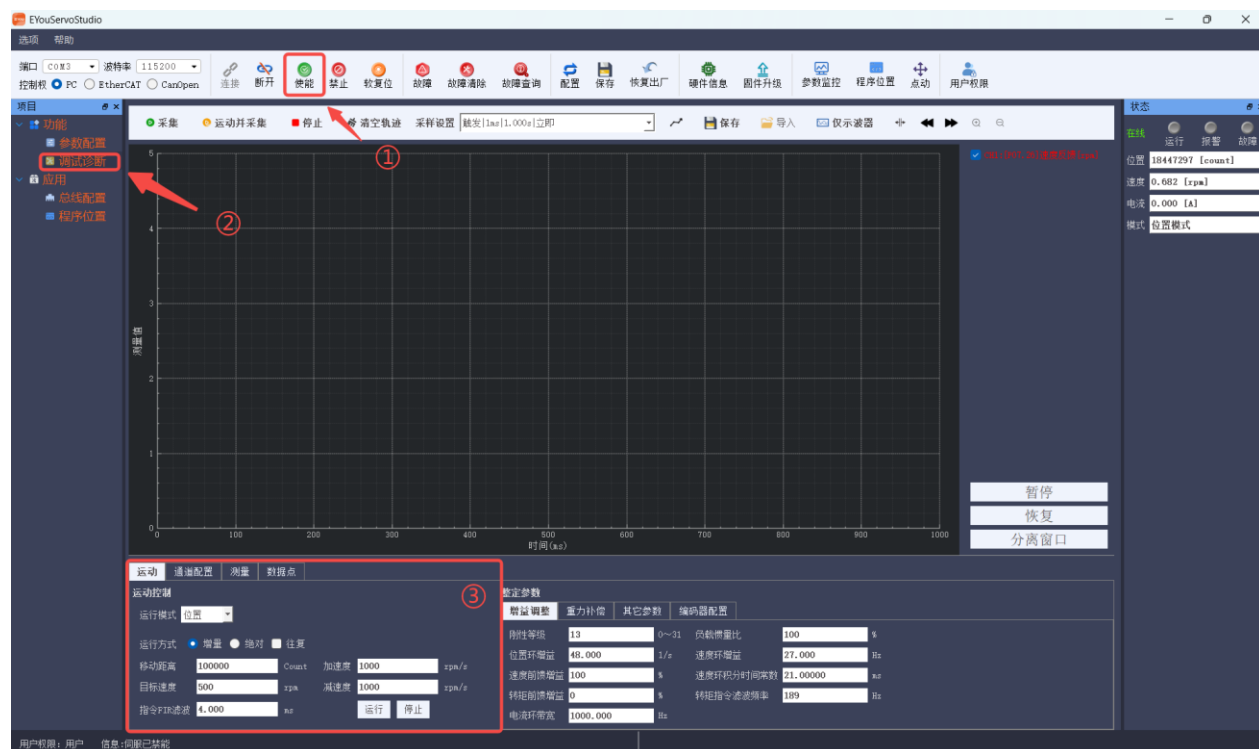


图 3-4 位置模式
Figure 3-4 Position Mode

3.3.1.2 速度模式

Speed Mode

速度模式使用加速度与减速度参数来控制电机达到既定速度的时间，通过控制在某一速度下的运行时间来控制电机的运动状态。

The speed mode utilizes acceleration and deceleration parameters to control the time required to reach a set speed, thereby regulating the motor's operational state by managing the duration at a specific speed.

使用方法：

usage method :

- ① 点击使能；

Click enable;

- ② 运动控制选项卡：运行模式选择速度模式；

Motion control tab: Select speed mode for the operating mode;

- ③ 运行方式：单次、往复；

Running mode: Single, Repetitive;

- ④ 目标速度：目标速度 1、持续时间 1（0 为一直运行），目标速度 2、持

续时间 2;

Target speed: Target speed 1, Duration 1 (0 for continuous operation), Target speed 2, Duration 2;

- ⑤ 速度与加速度: 给定允许的速度与加速度;

Speed and acceleration: Specify the allowed speed and acceleration;

- ⑥ 运行与停止: 点击运行即可运动, 停止则会停止运行。

Run and Stop: Click run to move, click stop to halt movement.

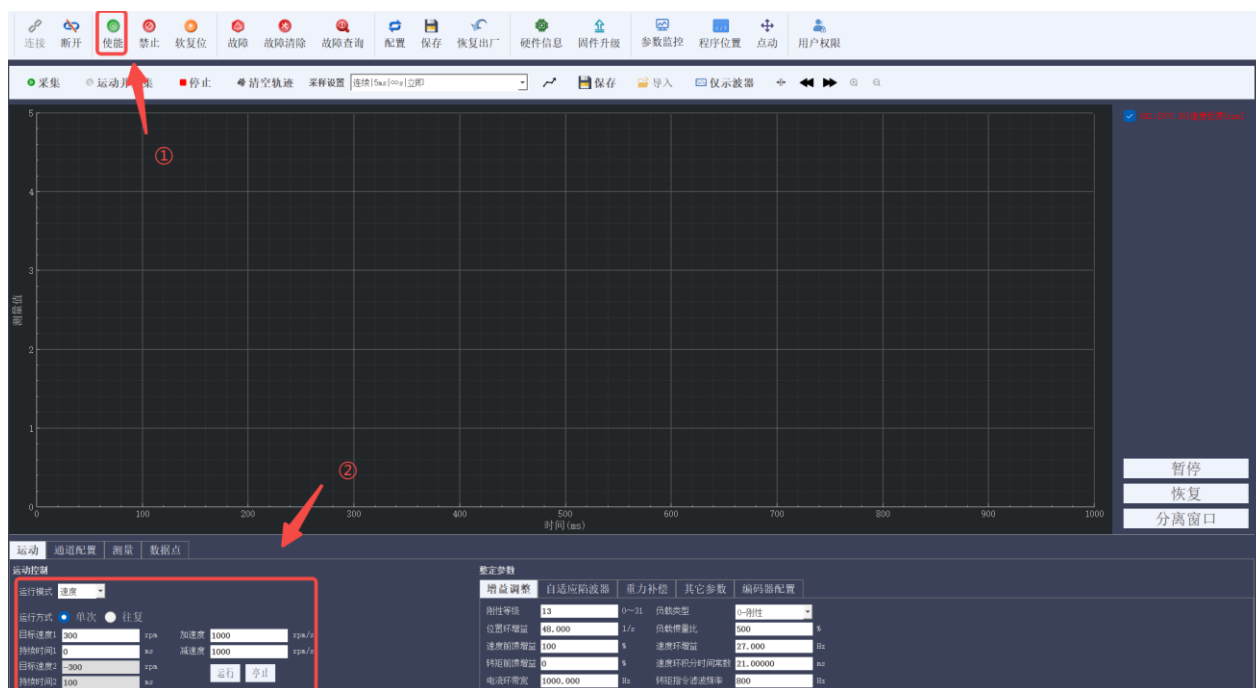


图 3-5 速度模式
Figure 3-5 Speed Mode

3.3.1.3 电流模式

Current Mode

阶跃: 当触发运行后, 驱动器会立即输出设定的恒定电流值 (如 1.000 A), 并持续保持该电流, 直至主动停止或触发保护。脉冲: 运行后驱动器输出一个短暂的电流脉冲, 其幅值为设定的电流指令, 持续时间由参数 (如 100 ms) 精确控制, 时间到后电流自动归零。

Step mode: Upon activation, the driver immediately outputs a preset constant current (e.g., 1.000 A) and maintains it until manual shutdown or protection activation.

Pulse mode: The driver generates a brief current pulse with the set current value,

precisely timed by parameters (e.g., 100 ms), after which the current automatically resets to zero.

使用方法:

usage method :

① 点击使能;

Click enable;

② 运动控制选项卡: 运行模式选择电流模式;

Motion control tab: Select current mode for the operating mode;

③ 运行方式: 阶跃、脉冲;

Running mode: Step, Pulse;

④ 电流指令: 给定 I_q 电流;

Current command: Specify the I_q current;

⑤ 持续时间: 脉冲模式生效;

Duration: Pulse mode active;

⑥ 运行与停止: 点击运行即可运动, 停止则会停止运行。

Run and Stop: Click run to move, click stop to halt movement.

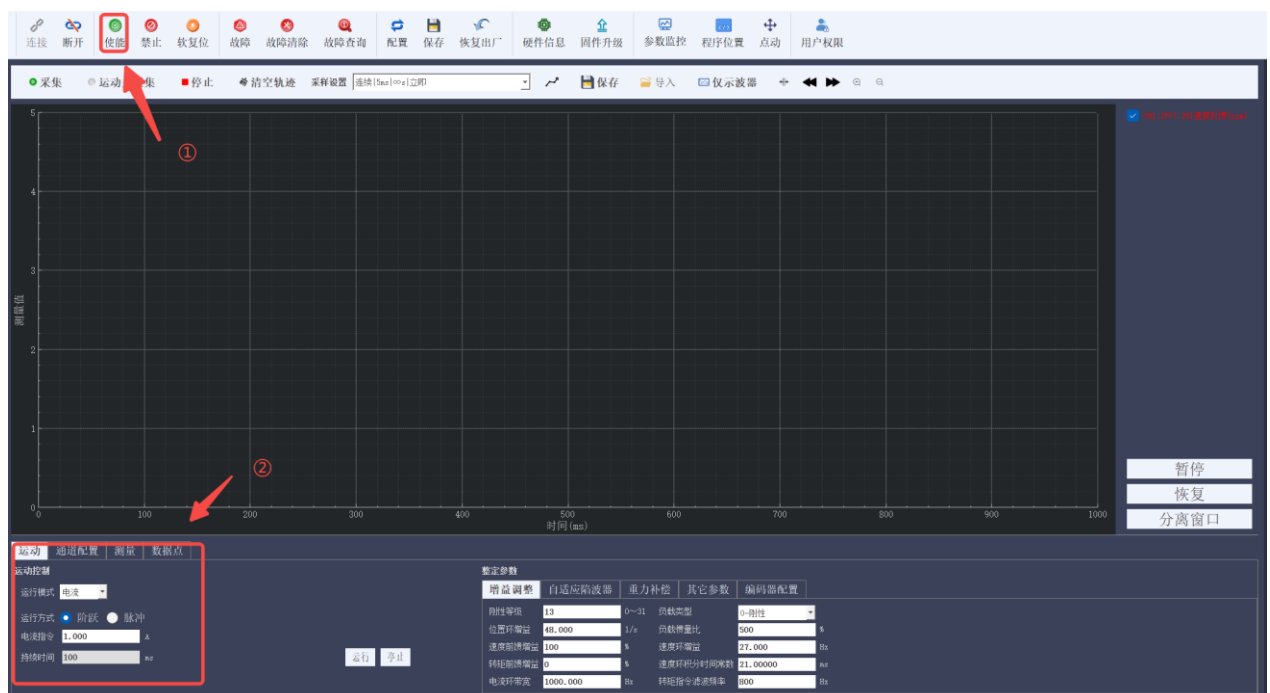


图 3-6 电流模式
Figure 3-6 Current Mode

3.3.1.4 力矩模式（力控版本特有）

Torque Mode (Force control version only)

在伺服驱动系统中，力控模式是一种以输出转矩为核心控制目标的运行方式。转矩指令：定义电机期望输出的目标转矩值，是力控的核心设定量。转矩偏移：用于补偿系统静态摩擦、重力负载或机械间隙的附加转矩，可在指令为零时提供恒定的补偿力，提升力控精度与稳定性。持续时间：决定转矩输出的时间窗口。当设置为 0ms 时，电机将持续输出设定转矩直至主动停止；当设置为非零值时，输出为有限时长的转矩脉冲，适用于动态响应测试或瞬时力控场景。

In servo drive systems, force control mode is an operational approach that prioritizes output torque as the primary control objective. Torque command: Defines the target torque value the motor is expected to deliver, serving as the core parameter for force control. Torque offset: Compensates for additional torque caused by static friction, gravitational loads, or mechanical clearance, providing constant compensation when the command is zero to enhance control precision and stability. Duration: Determines the time window for torque output. When set to 0 ms, the motor continuously outputs the set torque until active stop; when set to a non-zero value, it delivers limited-duration torque pulses, ideal for dynamic response testing or instantaneous force control scenarios.

使用方法：

usage method :

- ① 写入扭矩偏移量：空载状态将扭矩反馈（P07BD/0x27BD）写入扭矩偏移量（P0452/0x2452）；

Write torque offset: In no-load condition, write the torque feedback (P07BD/0x27BD) into the torque offset (P0452/0x2452);

- ② 点击使能；

Click to enable;

- ③ 关节在外力为 0，扭矩反馈为 0 状态不会运动，当扭矩反馈与给定不一致时关节会运动；

The joint will not move when external force is zero and torque feedback is

zero. The joint will move when the torque feedback does not match the set value;

- ④ 力矩控制环参数：额定扭矩（P0087/0x2087）、扭矩环比例增益（P0450/0x2450）、扭矩环积分增益（P0451/0x2451）、扭矩反馈低通滤波器频率（P0453/0x2453）；

Torque control loop parameters: rated torque (P0087/0x2087), torque loop proportional gain (P0450/0x2450), torque loop integral gain (P0451/0x2451), torque feedback low-pass filter frequency (P0453/0x2453);

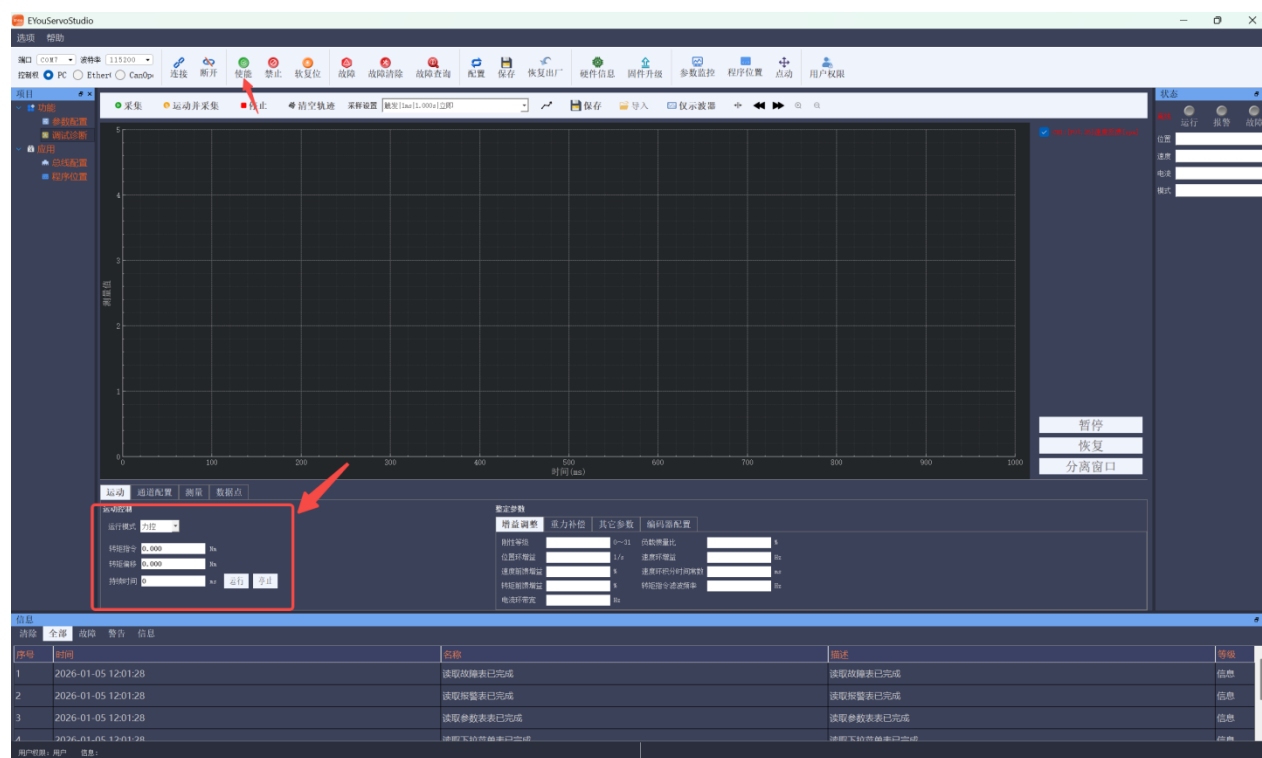


图 3-7 力控模式
Figure 3-7 Current Mode

3.3.1.5 状态栏

Status Bar

状态栏：显示关节的运动状态，包括位置，速度，电流，模式等

Status bar: Displays the joint's motion status, including position, speed, current, and mode.

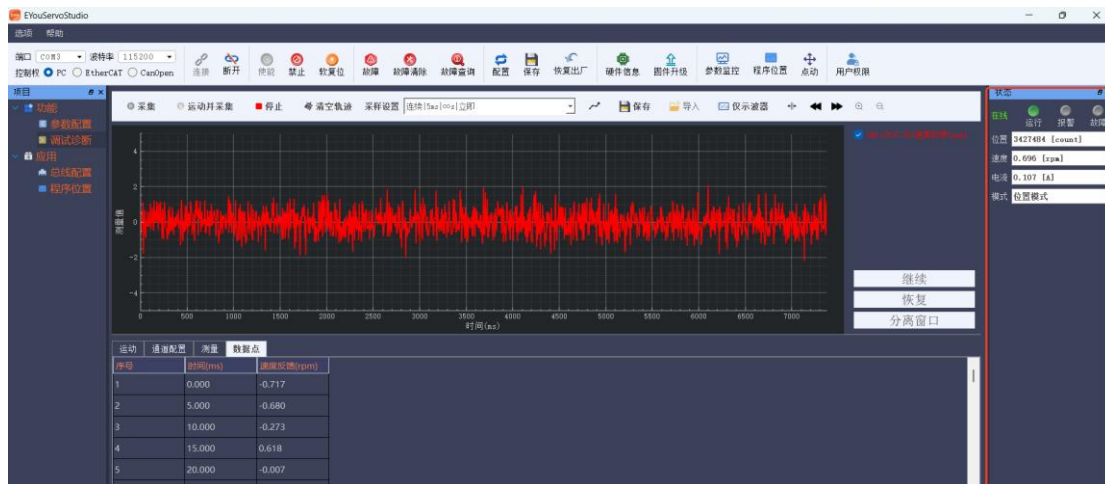


图 3-8 状态栏
Figure 3-8 Status Bar

3.3.2 整定参数模块介绍

Introduction to the Tuning Parameter Module

整定参数：包括增益调整、自适应陷波器、重力补偿、其他参数、编码器配置。

Parameter tuning: including gain adjustment, adaptive notch filter, gravity compensation, other parameters, and encoder configuration.

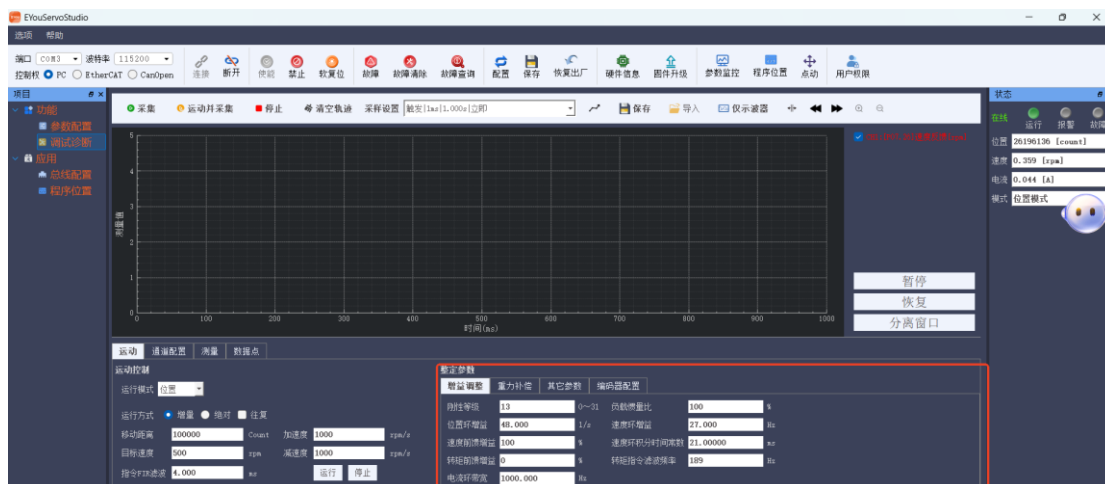


图 3-9 整定参数模块介绍
Figure 3-9 Introduction to the Calibration Parameter Module

3.3.2.1 重力补偿

gravity compensation

重力补偿：通过控制电机输出一个特定的力矩，来抵消机械结构（如机器人手臂）因自身重量而对关节电机产生的静态负载力矩。重力补偿有两种方式：1.

固定值补偿；2. 自调节补偿。

重力补偿里，固定值补偿是直接用一个恒定不变的数值抵消重力，算法简单、计算量小，但只能用在负载和姿态基本不变的场景；自调节补偿则会根据实时姿态、负载或传感器反馈动态计算并调整补偿量，精度更高、适应性更强，适合运动多变、要求更高的控制场景。

Gravity compensation: By controlling the motor output to generate a specific torque, it counteracts the static load torque exerted by the mechanical structure (e.g., robotic arm) on the joint motor due to its own weight. There are two methods for gravity compensation: 1. Fixed-value compensation; 2. Self-adjusting compensation.

In gravity compensation, fixed-value compensation directly counteracts gravity with a constant value, offering a simple algorithm and low computational load. However, it is only applicable in scenarios where the load and attitude remain largely unchanged. In contrast, self-adjusting compensation dynamically calculates and adjusts the compensation amount based on real-time attitude, load, or sensor feedback. This approach provides higher precision and greater adaptability, making it ideal for dynamic motion scenarios requiring more stringent control.

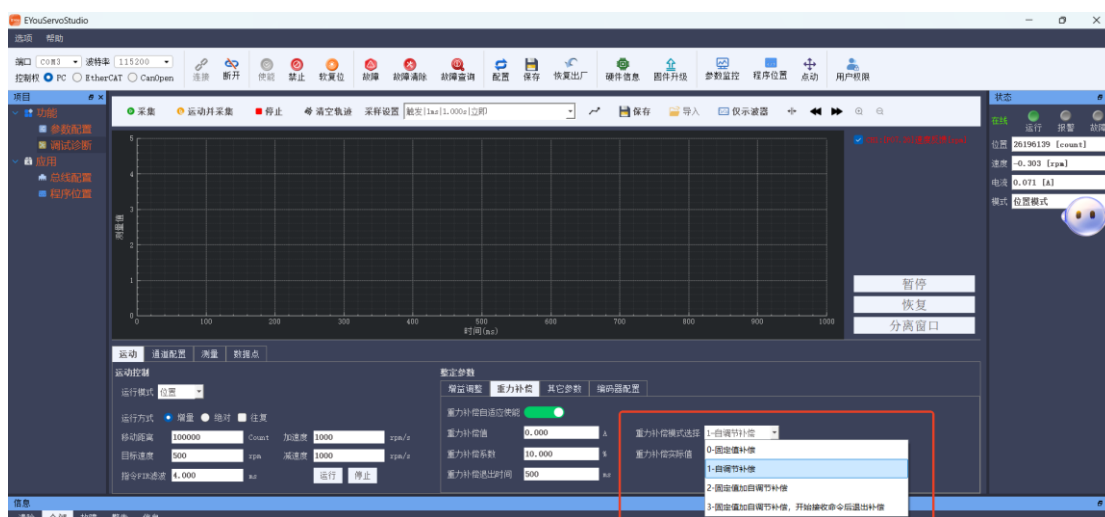


图 3-10 重力补偿 1

Figure 3-10 Gravity Compensation 1

表 3-1 重力补偿参数

Table 3-1 Gravity Compensation Parameters

参数串口地址/总线地址 Parameter Serial	参数名称 Parameter Name	功能 Function
---------------------------------	------------------------	----------------

Address / Bus Address		
P05.2A/0x252A	重力补偿自适应使能 Gravity Compensation Adaptive Enable	0- 禁止; 1-使能; 0 - Disable; 1 - Enable 在“自调节补偿”模式下, 系统会自动学习和更新重力补偿所需的电流值。在“固定值补偿”模式下, 此功能通常不激活。 In the "Self-tuning Compensation" mode, the system will automatically learn and update the current value required for gravity compensation. In the "Fixed Value Compensation" mode, this function is typically not activated.
P05.2B/0x252B	重力补偿值 Gravity Compensation Value	这是一个基准值。在“固定值补偿”模式下, 驱动器会持续输出这个电流。 This is a base value. In the "Fixed Value Compensation" mode, the drive will continuously output this current.
P05.2C/0x252C	重力补偿系数 Gravity Compensation Coefficient	一个比例系数, 用于微调“重力补偿值”的实际输出效果。 A proportional coefficient used to fine-tune the actual output effect of the "Gravity Compensation Value".
P05.2D/0x252D	重力补偿退出时间 Gravity Compensation Ramp-down Time	当重力补偿需要停止时 (例如切换到非重力补偿模式, 或收到停止命令), 补偿电流逐渐减小到零所用的时间。

		<p>The time it takes for the compensation current to gradually decrease to zero when gravity compensation needs to stop (e.g., when switching to a non-gravity compensation mode, or upon receiving a stop command).</p>
P05.2E/0x252E	<p>重力补偿模式选择 Gravity Compensation Mode Selection</p>	<p>用法（各模式详解）： Usage (Explanation of Each Mode):</p> <p>0 - 固定值补偿：最简单。驱动器持续输出设定的“重力补偿值”。适用于负载恒定、重力力矩不变的场景。</p> <p>0 - Fixed Value Compensation: The simplest. The drive continuously outputs the set "Gravity Compensation Value". Suitable for scenarios with constant load and unchanging gravitational torque.</p> <p>1 - 自调节补偿：系统（通常在使能时）自动运行一小段距离，通过检测维持速度/位置所需的电流，自动计算并更新“重力补偿值”。适用于负载会变化，或每次安装负载不同的场合。</p> <p>1 - Self-tuning Compensation: The system (usually upon enabling) automatically moves a small</p>

		distance, detects the current required to maintain speed/position, and automatically calculates and updates the "Gravity Compensation Value". Suitable for situations where the load may change, or the installed load differs each time.
P05.2F/0x252F	重力补偿实际值 Gravity Compensation Actual Value	这是一个只读的监视参数，显示当前重力补偿实际输出的电流值。 This is a read-only monitoring parameter, displaying the current actual output current value of the gravity compensation.

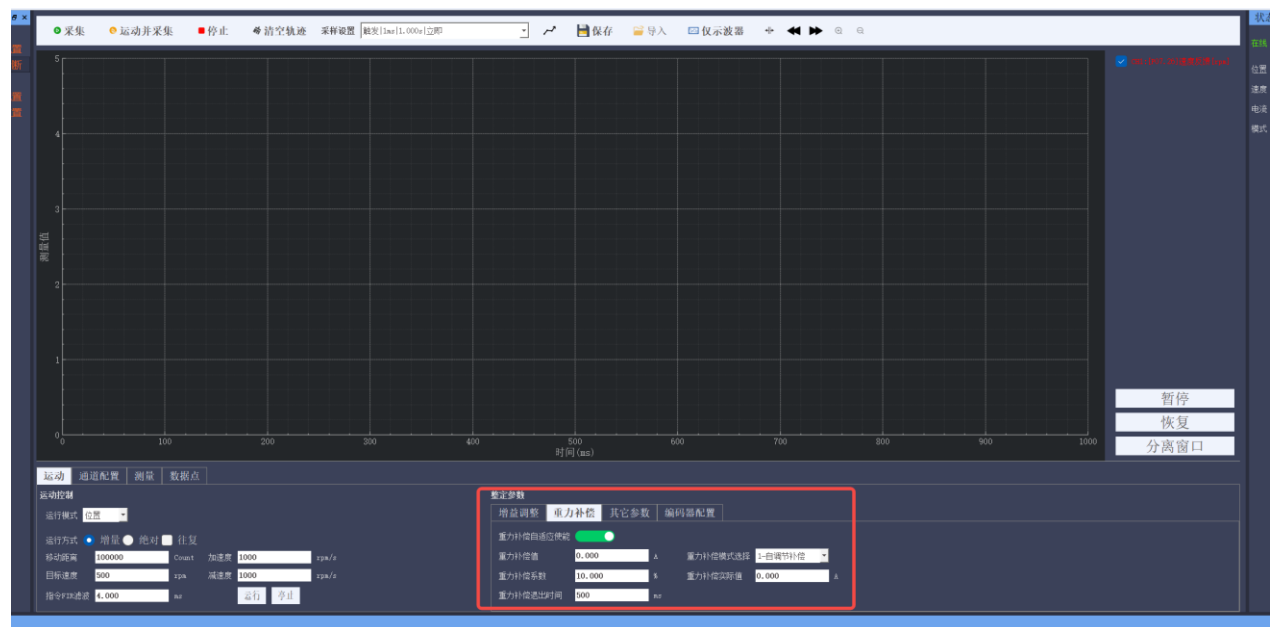


图 3-11 重力补偿 2
Figure 3-11 Gravity Compensation 2

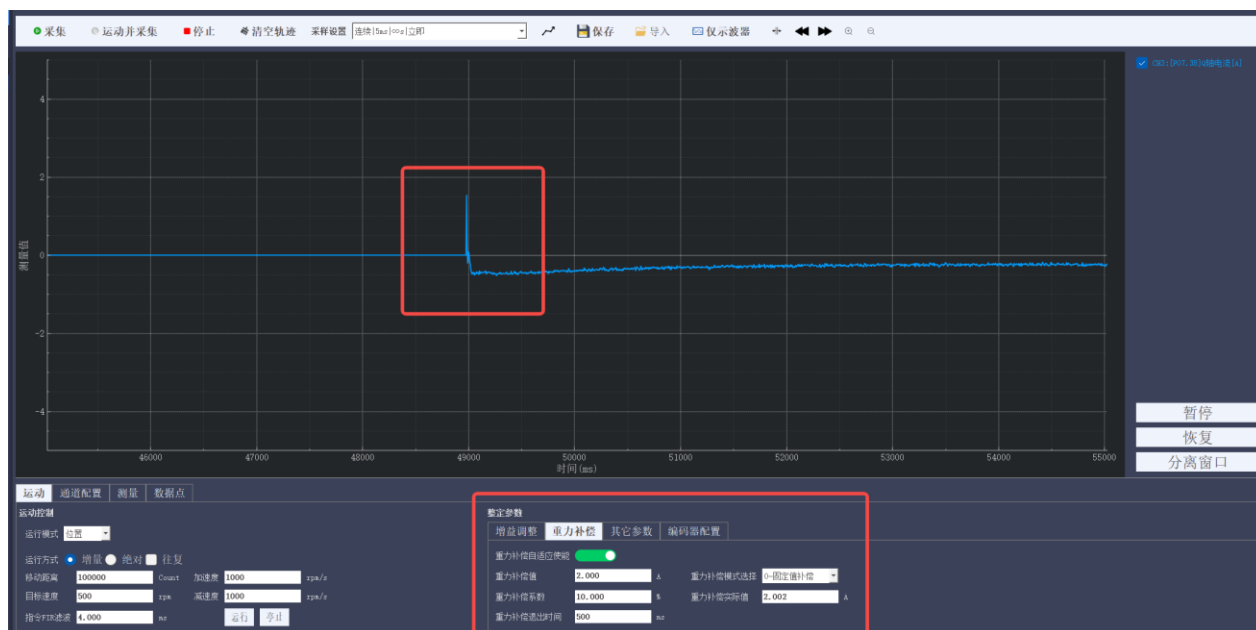


图 3-12 重力补偿效果

Figure 3-12 Gravity Compensation Effect

3.3.3 数据采集步骤介绍

Introduction to Data Collection Steps

3.3.3.1 通道配置

Channel Configuration

通道配置：在参数框搜索想采集曲线的参数，选择完毕后，勾选选定参数通道的“采集”与“显示”，在曲线图例会显示要采集曲线的参数及通道；采集过程中，如需要暂停可以点击暂停键，再次点击则继续采集；对曲线做出修改，点击恢复可以显示初始曲线；点击分离窗口，曲线采集会单独分离成第二窗口，再次点击恢复原状。窗口位置如图所示：

Channel Configuration: In the parameter box, search for the parameters of the curve you want to collect. After selection, check both the "Collect" and "Display" options for the selected parameter channel. The curve legend will display the parameters and channels of the curve to be collected. During collection, click the pause button to stop, and click again to resume. To modify the curve, click "Restore" to show the original curve. Click the separate window to isolate the curve collection into a second window, and click "Restore" again to return to the original state. The

window location is shown in the figure:

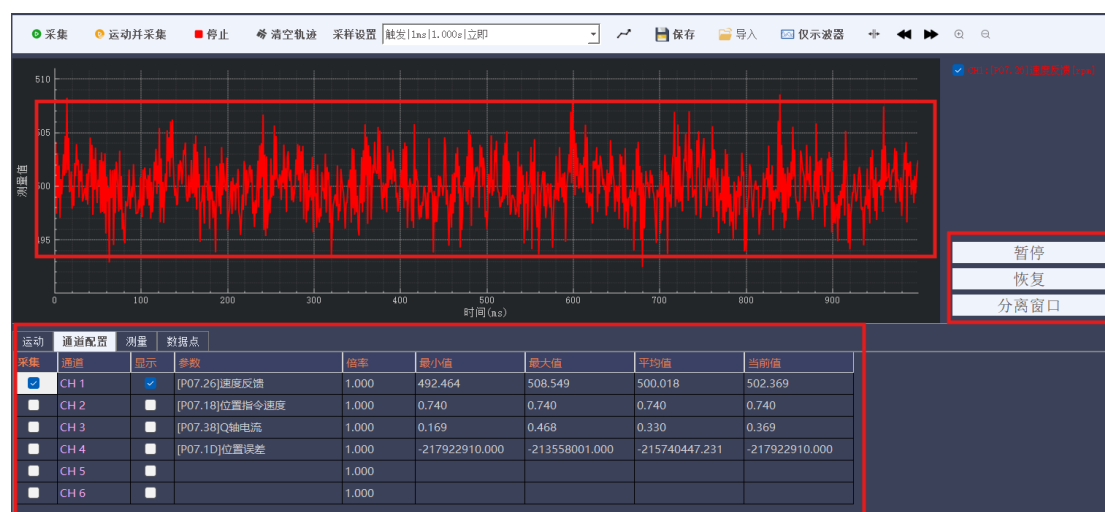


图 3-13 通道配置

Figure 3-13 Channel Configuration

测量：测量功能是显示变量的数值，可以通过光标显示变量在示波器中数据的大小。具体操作见示意图：

Measurement: The measurement function displays the numerical value of a variable. You can view the variable's data size on the oscilloscope using the cursor. See the schematic diagram for details.



图 3-14 测量

Figure 3-14 Measurement

3.3.3.2 采样设置

Data settings

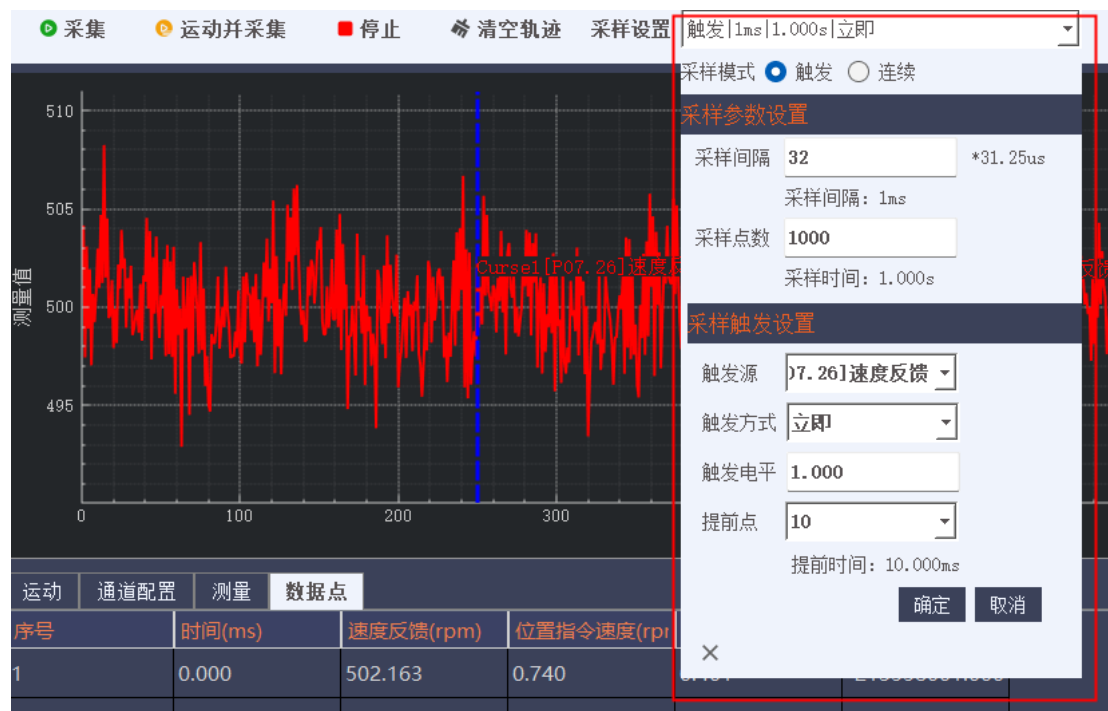


图 3-15 采样设置

Figure 3-15 Sampling Settings

- ① 设置采样模式为触发，设置采样间隔，采样点数（最高为 2000），触发采集最快 8000HZ，分别设置触发源、触发方式、触发电平、提前点，设置完成之后点击确定；

Set the sampling mode to trigger, configure the sampling interval and sampling points (up to 2000), with trigger sampling speed up to 8000Hz. Then set the trigger source, trigger method, trigger level, and advance points. After completing the settings, click OK.

设置采样模式为连续，设置采样间隔，连续采集最高 200Hz，采样模式为连续时触发源、触发方式、触发电平、提前点不可设置，设置完成之后点击确定。

Set the sampling mode to continuous and specify the sampling interval. Continuous sampling at up to 200Hz. When the sampling mode is continuous, trigger source, trigger method, trigger level, and advance point cannot be set. Click OK after completing the settings.

3.3.3.3 采样曲线说明

Sampling curve description

设置好采样方式和采样参数后，点击采集，采集结束后则有曲线生成。

After setting the sampling method and parameters, click Collect. The curve will be generated after collection.

①点击采集，若采集模式为触发，则采样点数采集完成后，会自动停止，生成曲线；若采集模式为连续，停止的时候需手动点击停止；

Click to start sampling. If the mode is triggered, the system will automatically stop after sampling is complete and generate a curve. If the mode is continuous, you must manually click to stop.

②运动并采集，仅在采集模式为触发时生效，连续模式下不可用，若运行模式的持续时间大于采样时间，则在采样时间到达后，电机会停止运行。

Motion and data acquisition, active only when acquisition mode is triggered, not available in continuous mode. If the runtime exceeds the sampling time, the motor will stop after the sampling time expires.

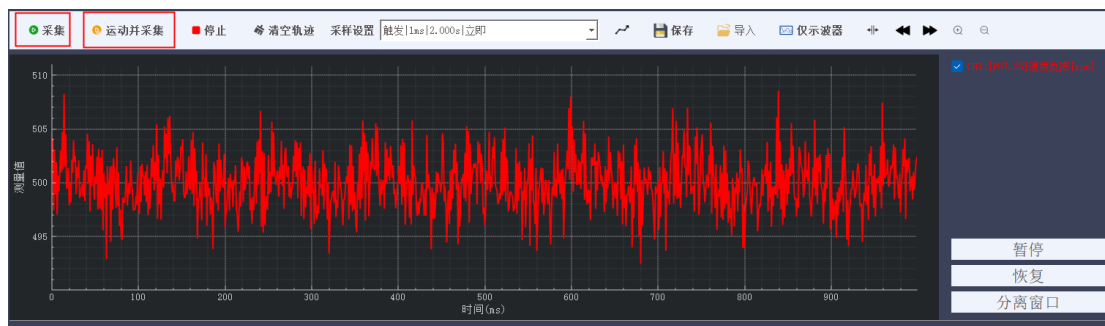


图 3-16 采样曲线说明

Figure 3-16 Explanation of Sampling Curve

3.3.3.4 其余参数说明

Other parameter descriptions



图 3-17 其余参数说明

Figure 3-17 Explanation of Other Parameters

这里将按照红框标注的顺序逐一介绍：

We will introduce them in the order marked by red boxes:

①清空轨迹：清除当前曲线；

Clear Trajectory: Delete the current curve.

②曲线加粗；

Curves in bold

③保存曲线：可选择保存为图片和文件；

Save as: You can save as an image or a file.

④导入文件：导入保存的图片和文件；

Import files: Import saved images and files.

⑤仅示波器：点击则调试运行窗口隐藏；

Oscilloscope only: Click to hide the debug window;

⑥调节表格坐标系大小；

Adjust the table coordinate system size;

⑦放大和缩小曲线的尺寸。

Zoom the curve size.

⑧测量：测量功能是显示变量的数值，可以通过光标显示变量在示波器中数

据的大小。具体操作见示意图：

Measurement: The measurement function displays the numerical value of a variable. You can view the variable's data size on the oscilloscope using the cursor. See the schematic diagram for details.

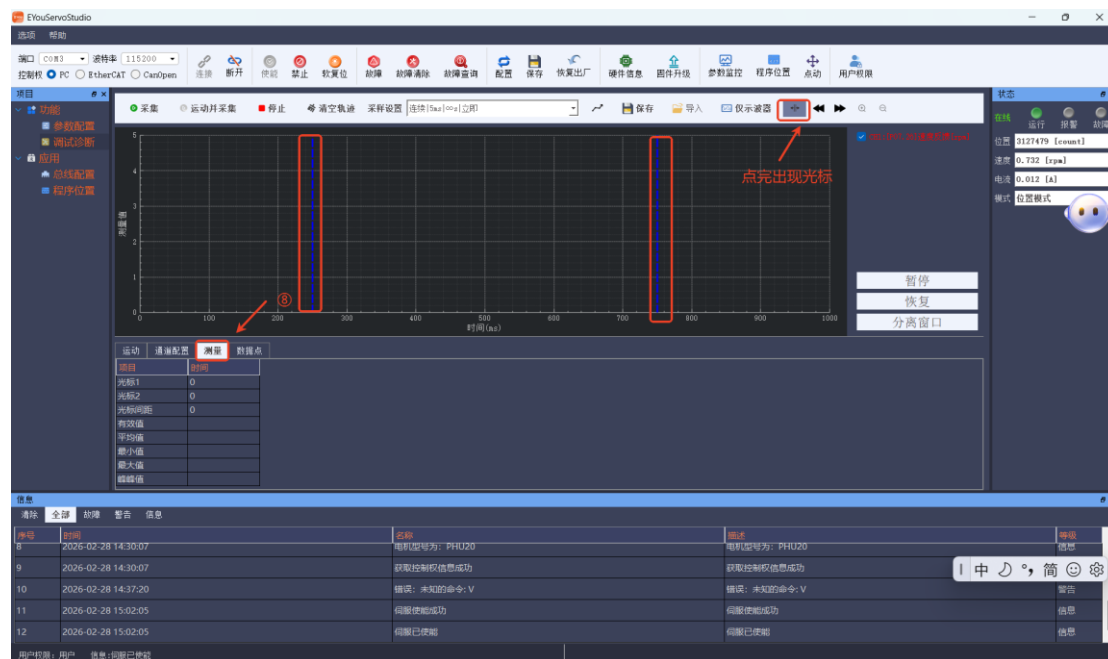


图 3-18 测量

Figure 3-18 Measurement

⑨数据点：数据点是在示波器停止后可以查看到变量的数据，详见数据点示意图。

Data points: These are the variable data that can be viewed after the oscilloscope stops, as shown in Figure (Data Point Schematic).

运动	通道配置	测量	数据点
序号	时间(ms)	速度反馈(rpm)	
1	0.000	-0.717	
2	5.000	-0.680	
3	10.000	-0.273	
4	15.000	0.618	
5	20.000	-0.007	

图 3-19 数据点

Figure 3-19 Data Points

3.3.3.5 整体使用步骤

Overall usage steps

- ① 通道配置：配置需要采集的数据；

Channel configuration: Configure the data to be collected;

- ② 选择数据采集模式：触发、连续；

Select the data collection mode: Triggered, Continuous;

- ③ 采集频率：触发采集最快 8000HZ，连续采集最高 200HZ；

Collection frequency: Capture up to 8000Hz with continuous capture up to 200Hz;

- ④ 点击采集：即可显示波形。

Click collect: The waveform will be displayed.

3.3.4 软件上方按钮功能介绍

Introduction to the button function above the software

3.3.4.1 基础功能介绍

Introduction to the software's top features



- ①使能：电机进入使能状态。禁止：电机进入未使能状态。软复位：MCU 软重启。

Enable: The motor enters the enabled state. Disable: The motor enters the disabled state. Soft reset: Close the serial port and reconnect the host computer.



- ②故障：记录电机在一定条件发生的警告和故障信息。

Fault: Records warnings and fault information generated by the motor under specific conditions.



图 3-20 故障及报警

Figure 3-20 Fault and Alarm

③故障清除：清除电机故障。

Troubleshooting: Resolve motor issues.

④故障查询：各种故障的介绍、产生原因、确认方法、处理措施。

Fault Inquiry: Introduces various faults, their causes, confirmation methods, and handling measures.

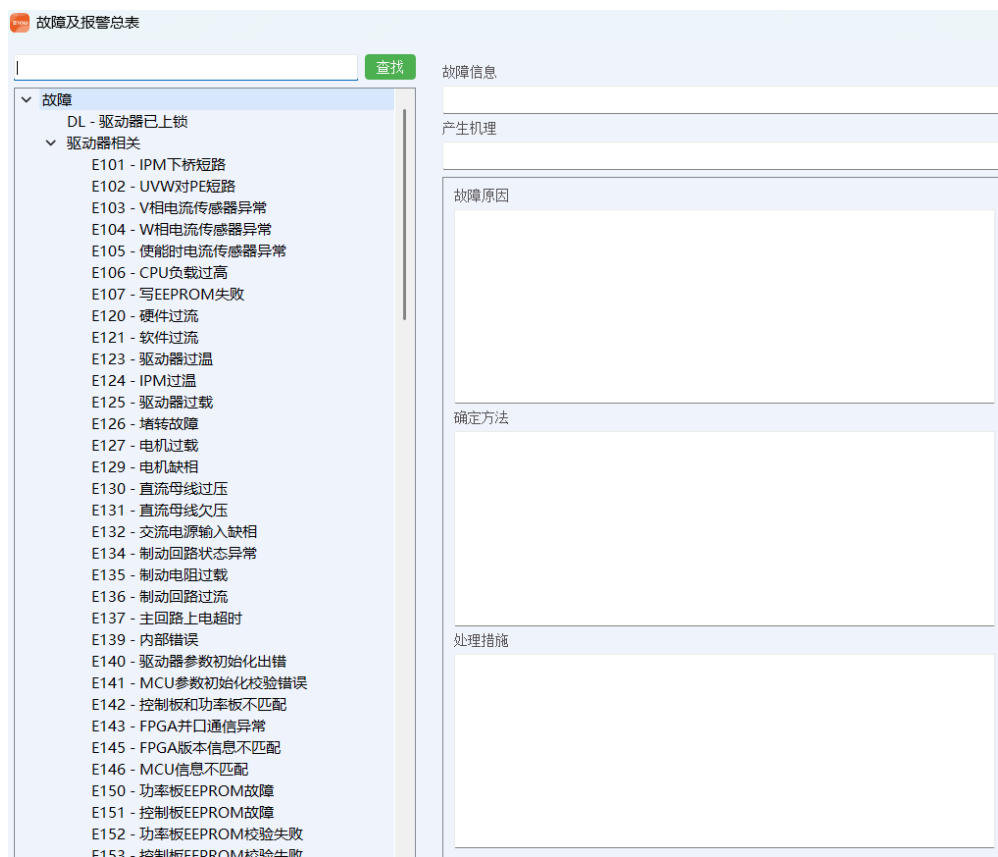
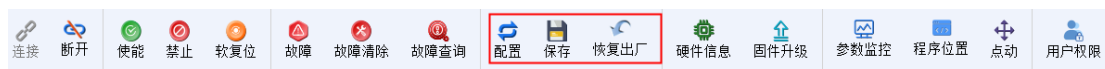


图 3-21 故障及报警总表

Figure 3-21 General Table of Faults and Alarms



⑤保存：使用上位机更改变量参数，保存到下位机的 EEPROM 中。

Save: Modify variable parameters on the host computer and save them to the EEPROM of the slave computer.

⑥恢复出厂：若上位机设置参数过多，需要恢复原始参数，可点击恢复出厂。

Restore factory settings: If the host computer has too many parameters, click to restore the original settings.



⑦硬件信息：介绍驱动版相关信息。

Hardware information: Provides driver information.



硬件信息	
驱动器类型	
电压等级	48 VDC
持续电流	14.142 A / 10.000 Arms
峰值电流	42.426 A / 30.000 Arms
序列号	
硬件版本	0.0
MCU固件版本	0.0.41D25.12.30
FPGA固件版本	0.0.0D0.0.0

图 3-22 硬件信息

Figure 3-22 Hardware Information

点动：点击正向和反向按钮控制电机运动，具体操作见图：

Intermittent operation: Use the forward and reverse buttons to control the motor movement. The specific operation is shown in the figure.

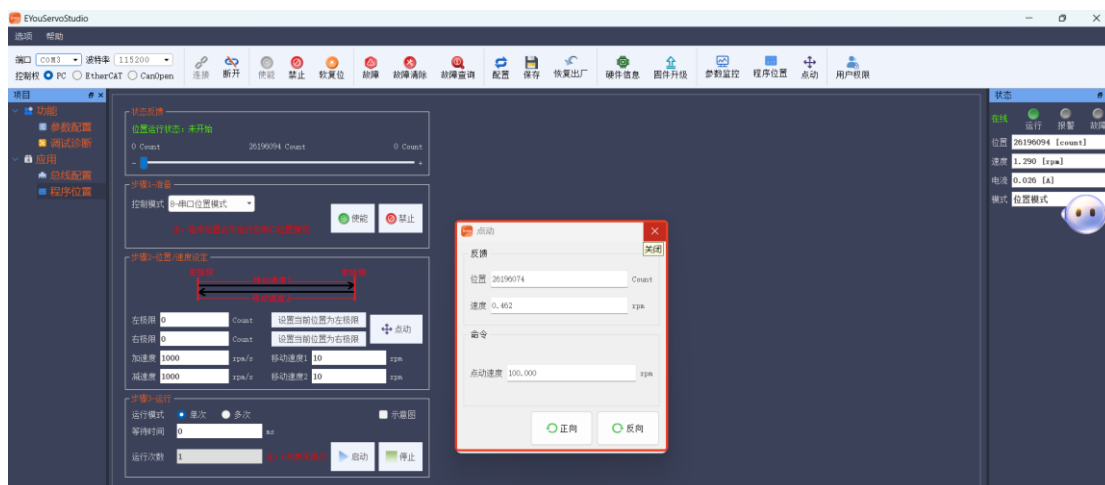


图 3-23 点动操作

Figure 3-23 Spot Operation

3.3.4.2 固件升级

Firmware Upgrade

串口升级方法

Serial Port Upgrade Method

- ① 选择固件升级，选择.yam 文件；

Select firmware upgrade. Select the .yam firmware file.

② 确定使用串口，点击升级。

Confirm using the serial port. Click Upgrade.



图 3-24 串口升级方法
Figure 3-24 Serial Port Upgrade Method