UART 调试模块用户手册

User Manual of UART Debugging Module

V1.0

版本变更说明

Version Change Description

UART 调试模块用户手册版本变更说明 Version Change Notice of User Manual for UART Debugging Module				
序号	版本号	变更日期	修订内容	变更人
1	v1.0	20260307	初版发布 First Edition Released	--

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一、 产品介绍

Product introduction

1.1 产品功能介绍

Product Features

UART 调试模块是我司关节系列产品的专用通信接口，主要用于实现关节模块与公司自研上位机软件 EYouServoStudio 之间的通信连接。

The UART debugging module is a dedicated communication interface for our joint series products, designed to establish communication between the joint module and our proprietary EYouServoStudio host software.

EYouServoStudio 是一款专为关节产品设计的串口调试与控制软件。该软件通过串口通信协议与谐波关节硬件建立连接，为用户提供以下核心功能：

EYouServoStudio is a serial port debugging and control software designed for joint products. The software establishes a connection with the harmonic joint hardware through a serial port communication protocol, providing users with the following core functions:

①参数监测：实时读取关节的运行参数，便于用户了解关节状态；

real-time reading of the operating parameters of the joint, which is convenient for users to understand the joint status;

②故障诊断：协助用户检测并定位关节可能存在的异常；

Fault diagnosis: assist users in detecting and locating possible abnormalities in the joint; Motion control；

③运动控制：支持向关节发送位置、速度、电流等运动模式指令，通过不同的参数精准控制关节的运动状态；

Support sending motion control instructions such as position, speed, and power supply to joints to accurately control the movement state of joints Status visualization；

④状态可视化：通过运动曲线实时反映关节的运动状态，帮助用户更直观地进行调试与开发。

Real-time reflection of the movement state of joints through motion curves, helping users debug and develop more intuitively.

通过 EYouServoStudio，用户可以更便捷地对关节进行调试与控制，提升开发效率。

Through EYouServoStudio, users can more easily debug and control joints, improving development efficiency.

1.2 性能说明

Performance description

①PC 接口符合 USB2.0 全速规范，兼容 USB3.0；

The PC interface complies with the USB2.0 full-speed specification and is compatible with USB3.0;

②使用 USB 总线电源供电 (DC+5V，150mA)；

Powered by USB bus power supply (DC+5V, 150mA);

③上位机支持 Win7、Win8、Win10、Win11 等 Windows 操作系统；

The host computer supports Win7, Win8, Win10, Win11 and other Windows operating systems;

④工作温度：-20℃~+70℃；工作湿度：15%~90%RH，无凝露。

Working temperature: -20°C~+70°C; Working humidity: 15%~90%RH, no condensation.

二、产品使用方法介绍

Product Usage Instructions

2.1 产品外形展示

Product Appearance Display

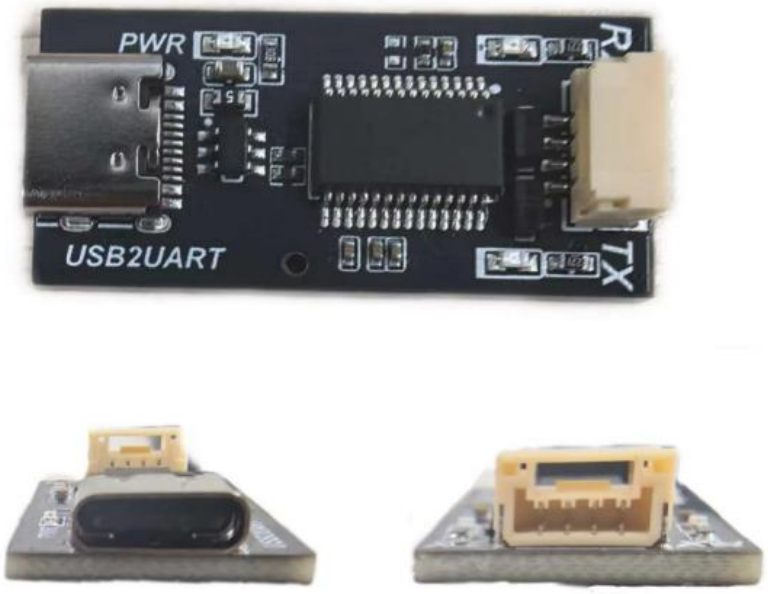

图 2-1 产品外形展示

Figure 2-1 Product Appearance Display

说明：产品长约 34mm，宽约 17mm（由于公差存在少许误差是正常的）

The product measures approximately 34mm in length and 17mm in width (minor tolerance variations are normal).

2.2 产品引脚定义

Product Pin Definition

左侧为 USB 接口，右侧为 UART 通信接口详细请看下表,方向从 TX 指向 RX：

The left side has a USB port, while the right side has a UART communication port. For details, see the table below.The direction is from TX to RX.

表 2-1 UART 端子引脚定义

Table 2-1 UART Pin Definitions

Pin	UART 端子引脚定义	功能
1	RX	串口输入
2	TX	串口输出
3	+5V	+5V
4	GND	接地

2.3 产品连线方式说明

Product connection method

USB 接口端口与电脑端相连接，另一端与关节模块上的 UART 相连，UART 是一个 4pin 的接口，接口已在上方说明，连接如图所示：

The USB port connects to the computer's interface, while the other end links to the joint module's UART. This 4-pin interface (as described above) is connected as shown in the diagram:

图 2-2 连线方式展示

Figure 2-2 Connection Method

三、上位机连接和使用

PC Connection and Usage

3.1 上位机下载方法

How to download from 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.

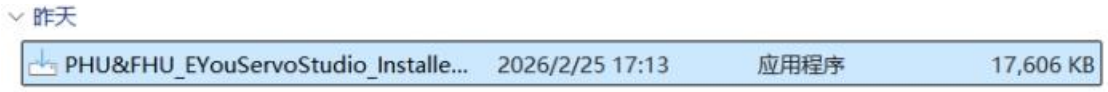

图 3-1 上位机的安装步骤 1

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

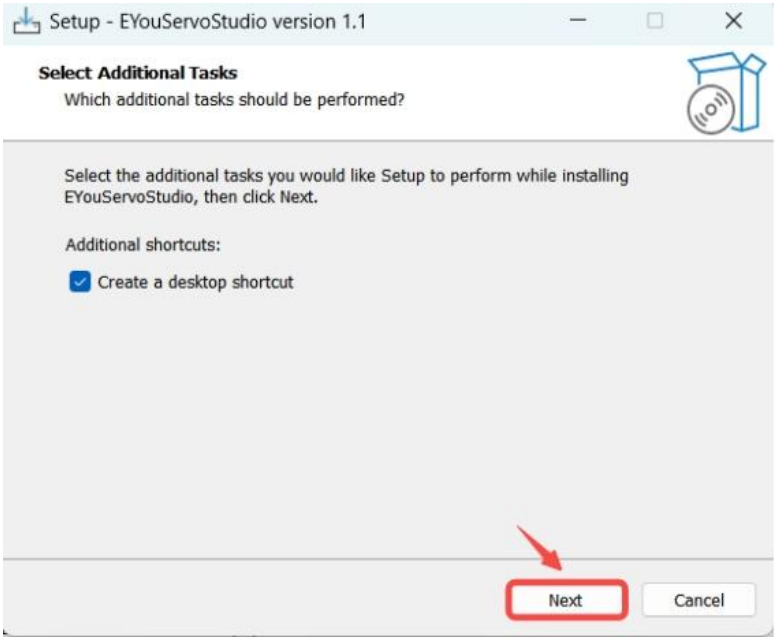

图 3-2 上位机安装步骤 2

Figure 3-2:Installation Step 2 for the Host Computer

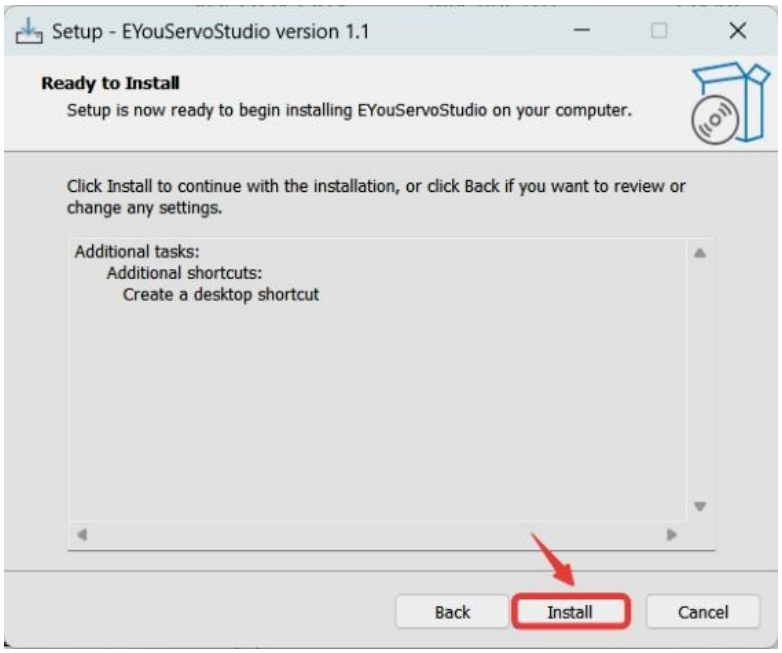

图 3-3 上位机的安装步骤 3

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

3.2 上位机连接成功说明

The host computer has been successfully connected.

连接好后打开上位机，点击端口，控制端选择 PC，成功连接则会在信息框显示，PWR 红灯常亮，Rx 和 Tx 同步闪烁，Rx 为红灯，Tx 为绿灯，出现其他情况则考虑是否存在问题。

After establishing the connection, power on the host computer and select the PC as the control terminal. A successful connection will be indicated in the status bar, with the PWR red light remaining on and Rx/Tx lights flashing synchronously (Rx red, Tx green). If any abnormal conditions occur, potential issues should be investigated.

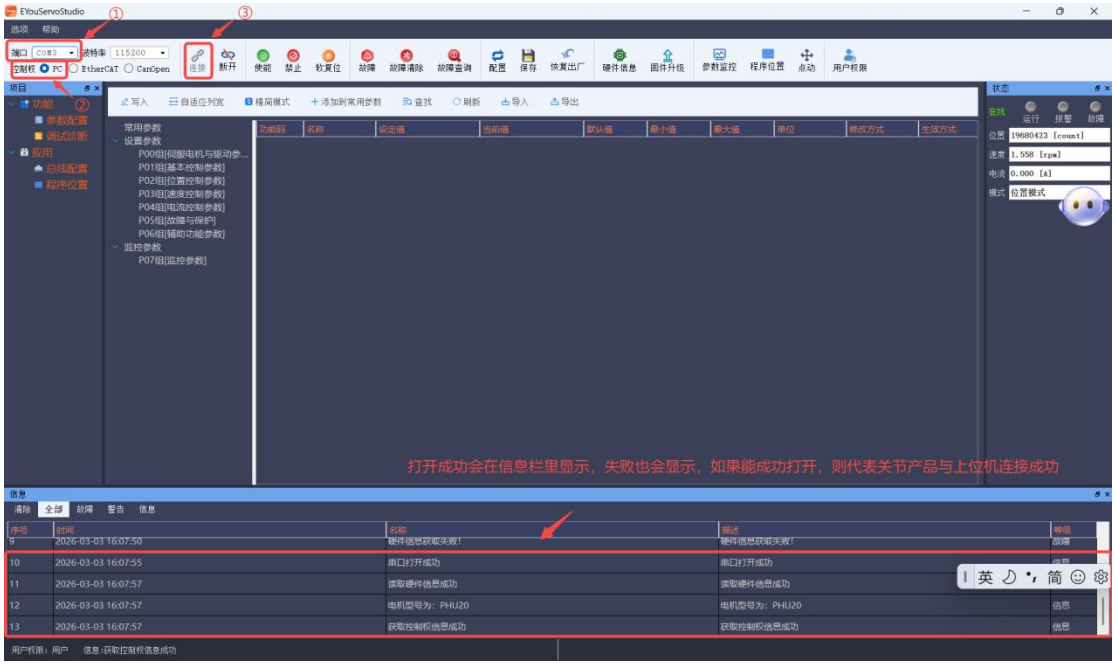

图 3-4 上位机连接成功说明

Figure 3-4 Instructions for successful connection to the host computer

上位机的详细说明请参考 EYouServoStudio 使用手册

For detailed instructions on the host computer, please refer to the EYouServoStudio User Manual