

# UART Transparent Mode

The **UART Transparent Transmission** feature allows your PC software (such as **FD Servo Debugger**) to communicate **directly with servos** through the driver board — just like connecting them to a regular USB-to-UART adapter.

This mode is designed for quick debugging, servo tuning, and firmware updating.

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## 1. Hardware Setup

1. Power on the driver board and toggle the power switch to **ON**.
2. Use a **USB cable** to connect your computer to the board's **UART interface**.
3. Launch the **FD software** on your computer.
4. Set the **baud rate** to **1,000,000 (1M)**.

The driver board's UART0 always runs at 1M baud in transparent mode, regardless of the servo's own baud rate.

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## 2. Adjusting the Servo Baud Rate

If your servo uses a baud rate **other than 1M**, you can change the communication speed between the driver board and the servos using one of the following methods:

### Option 1 – Use the Web Interface

You can easily switch the servo baud rate from the **top toolbar** in the **Web Application** interface.

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### Option 2 – Send a JSON Command

Alternatively, you can send a command via **Wi-Fi (HTTP/WebSocket)** or **USB CDC** to set the communication baud rate.

For example, the following command sets it to **500,000 bps**:

```
{"T":10,"baud":500000}
```

### Option 3 – Auto-Apply on Startup

To make the baud rate configuration **persistent across reboots**, add this command to your **boot.mission** file:

```
{"T":303,"name":"boot","json":{"T":10,"baud":500000}}
```

This ensures that every time the board powers on, it automatically configures the servo communication speed before establishing the UART passthrough.

## 3. Using FD Software

Once the baud rate is set:

1. Open FD software.
2. Connect to the corresponding **COM port**.
3. Begin scanning, testing, or tuning your servos as usual.

From this point, all communication is **transparent** — the FD software directly exchanges data with the connected servos through the driver board.

## Summary

- UART Transparent Mode simplifies direct servo debugging.
- The driver board acts as a **bridge** between FD software and servos.
- Default UART baud rate: **1M**.
- Supports dynamic or automatic baud-rate configuration.
- Ideal for **firmware flashing**, **servo tuning**, or **real-time testing**.