

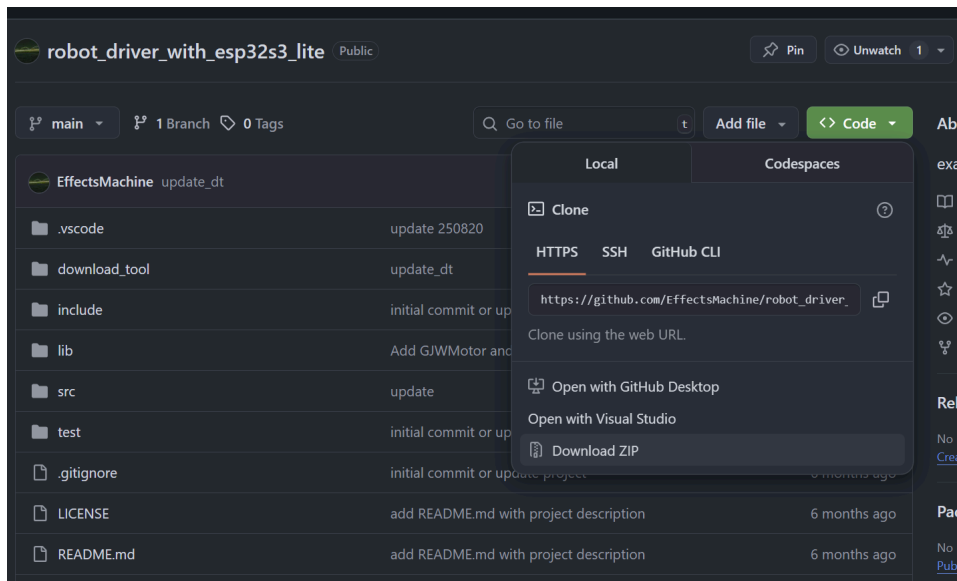
Firmware Upgrade, Factory Reset & Mid-Position Calibration

You can restore the device to factory settings at any time.

Open-Source Project Repository

https://github.com/EffectsMachine/robot_driver_with_esp32s3_lite

Firmware Download & Flashing



Step	Description
1. Download the project from GitHub	
2. Click "Download ZIP".	
3. Extract the ZIP file.	Inside, you will find a folder named download_tool .

Step	Description
4. Open the folder <code>LinkArm_LT_Download_Tool</code> .	
5. Connect the driver board's UART port to your computer.	
6. Run <code>flash_download_tool_3.9.9_R2.exe</code> .	
7. Select device type and mode:	- Chip: ESP32-S3 - Work Mode: Factory - Download Mode: UART
8. Click "OK" to enter the flashing interface.	
9. Choose the correct COM port.	Set BAUD = 921600 , then click START to begin flashing. For batch flashing multiple driver boards, select their COM ports and click START ALL .
10. Wait for flashing to complete.	After flashing finishes, reboot the device. The newly uploaded firmware will begin running. Flashing & reset complete.

Mid-Position Calibration

After flashing the firmware, the robotic arm will lose its factory-set midpoint calibration (stored in `boot.mission` , which also stores Wi-Fi settings).

If the arm cannot find this calibration file at startup, it will automatically enter **Calibration Mode**:

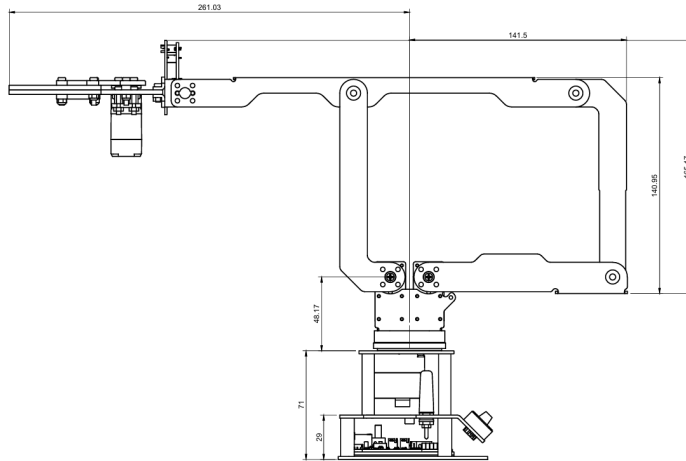
Calibration Mode Indicators

- RGB LED shows **solid yellow**
- **Torque is released**, joints are free to move by hand

Step 1 — Manually set the arm to the standard midpoint pose

Gently move each joint by hand into the neutral calibration posture:

- All joints aligned as shown in the reference diagram



- The gripper must be fully closed

Step 2 — Save the calibration

- Long-press the **downward direction** of the 5-way switch
- When the **RGB LED turns off**, calibration is saved successfully
- If the LED does not turn off, repeat the long-press

Step 3 — Reboot twice

Press the **RESET** button on the base **two times**:

1. First reboot:

The arm will move toward an extreme angle — this is normal.

You do **not** need to wait for it to finish.

2. Second reboot:

The arm will rotate to the newly calibrated midpoint.

The gripper will be in an opened state — this indicates **calibration succeeded**.