

1.4 Deviation Adjustment Instructions

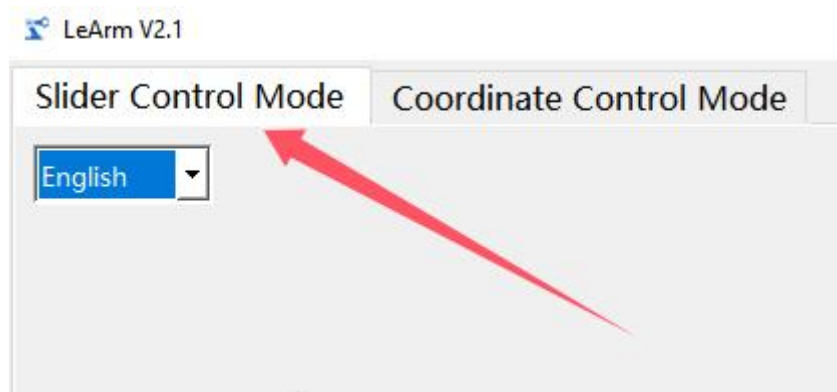
Note: If you replace a servo or remove an existing one, you must recalibrate the offset.

1. Preparation

After assembling the robotic arm, offset calibration must be performed to ensure smooth and accurate movement during the upcoming lessons. Before beginning the calibration, please make sure the following preparations are completed:

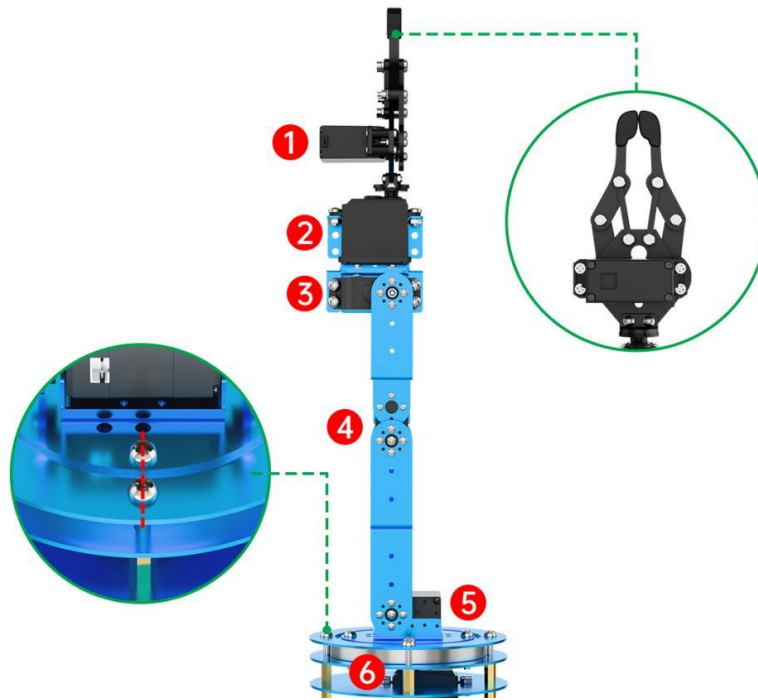
- 1) The controller is mounted onto the robotic arm base plate and one of the core boards is installed.
- 2) All servo cables are connected to the controller, and the power cable is plugged into the controller's DC port and connected to the power adapter.
- 3) Follow the first three sections of the document "1. Tutorials\3. PC Software Action Group Control\3.1 Software Introduction & Installation Package\3.1.1 PC Software Overview" to install and launch the LeArm PC software, and connect the robotic arm to your computer.

Note: All offset calibration steps related to the PC software must be performed in "Slider Control Mode."



2. Deviation Adjustment Standard

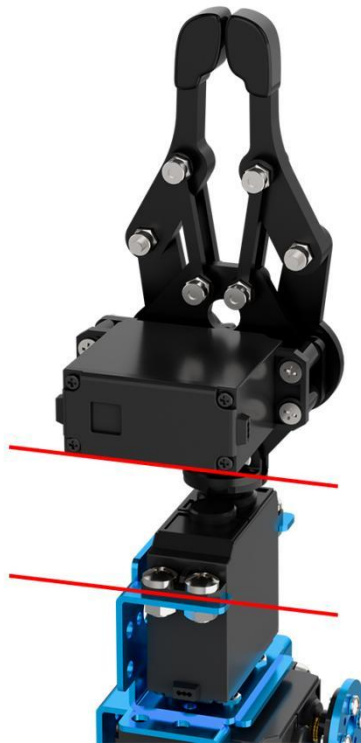
Click to move all servos of the robotic arm to the position value of 1500. Then observe the arm based on the following criteria:



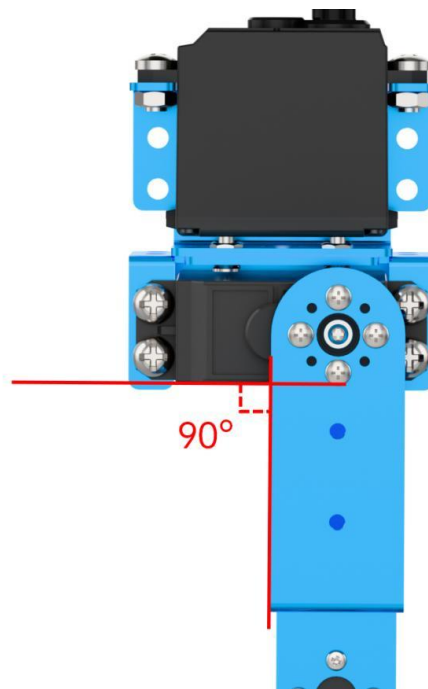
- 1) ID1: The gripper should be centered, with the jaws lightly touching.



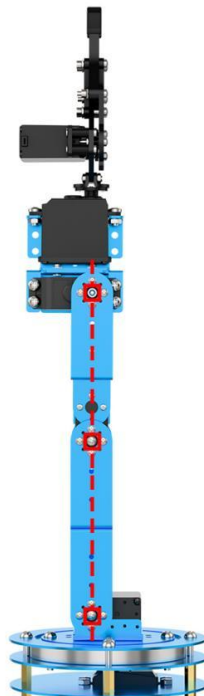
- 2) ID2: The edge of the metal bracket connected to ID2 should be parallel to the edge of the ID1 servo.



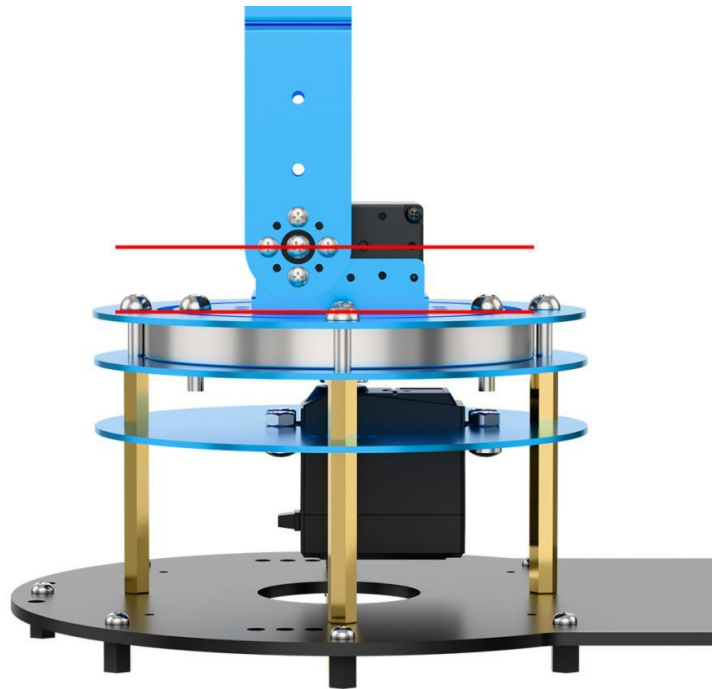
- 3) ID3: The servo should be perpendicular to the bracket below it.



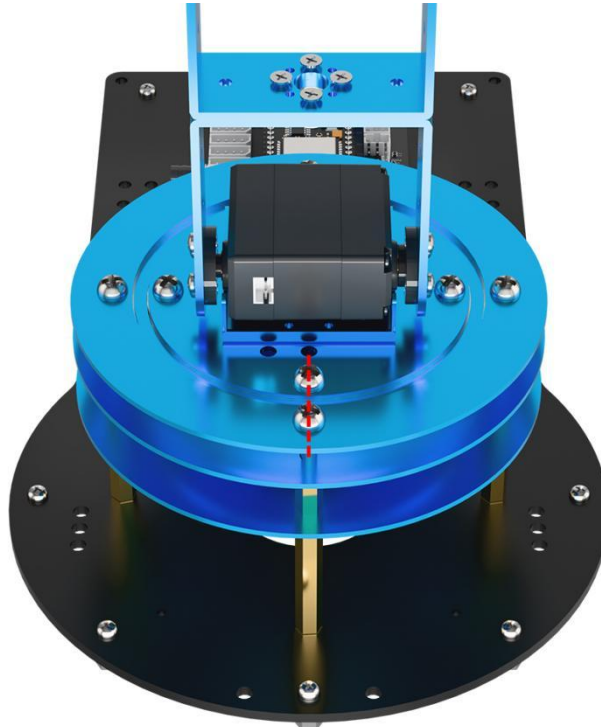
- 4) ID3 to ID5: These servos should form a straight vertical line, and the robotic arm as a whole should not lean forward or backward.



- 5) ID5: The screw line on the horizontal servo horn should be parallel to the base platform below.



- 6) ID6: The screws on the circular plate should align with the screws on the base of the pan-tilt.



- 7) Drag the slider for servo ID6 fully to both sides, then click Reset to check if the screw on the disk is centered. If there's still a deviation after resetting,

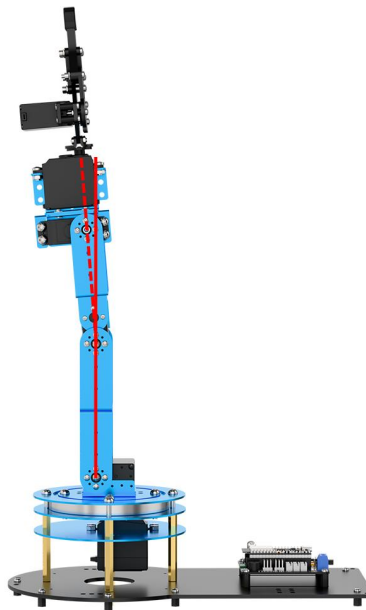
fine-tuning is required.



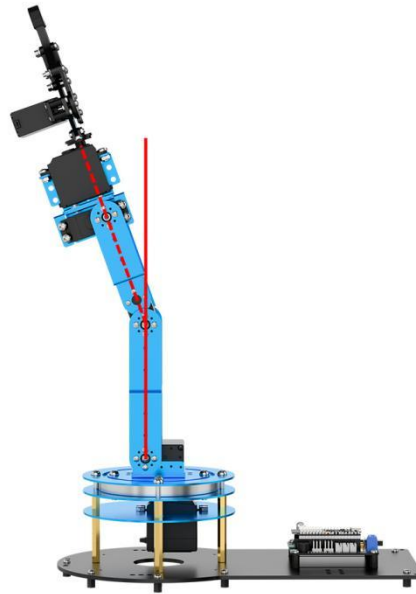
Note: After completing the adjustment, run Action Group 3 to verify that the arm can successfully grip a 4 cm cube.

If a joint has a slight deviation from the standard position, it is recommended to follow Section 3: Deviation Adjustment to fine-tune the servo. If the deviation is significant, it is recommended to remove and reinstall that servo. (Before reinstallation, use the PC software to center the servo.)

Deviations similar to the image below are considered minor deviations.

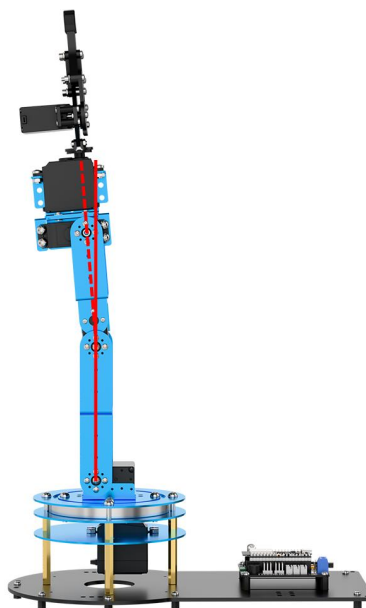


Deviations similar to the image below are considered major deviations.

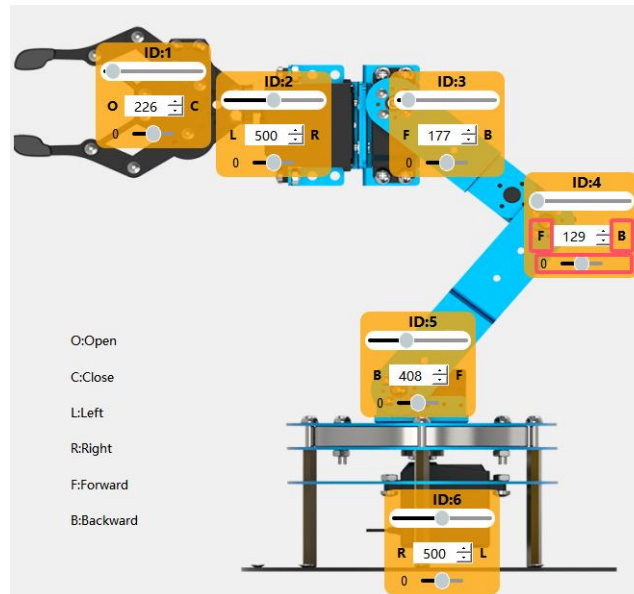


3. Deviation Adjustment Instructions

During installation, minor deviations are common due to manual assembly. These small misalignments are normal and can be corrected using the PC software. Follow the steps below to perform manual calibration (using Servo ID4 as an example):



- 1) Click to read the current offset values of the robotic arm's servos
- 2) On the left side of the interface, locate the servo icons and select the corresponding slider beneath the target servo. Drag the slider to adjust the servo's position offset. The display above shows how the offset value correlates with the servo's rotation direction.



Note: If a servo cannot reach its standard position even when the offset is set to its maximum, it may indicate a significant mechanical deviation. In this case, reset the offset to zero, click Save, and then remove and reinstall the servo to correct the alignment.
