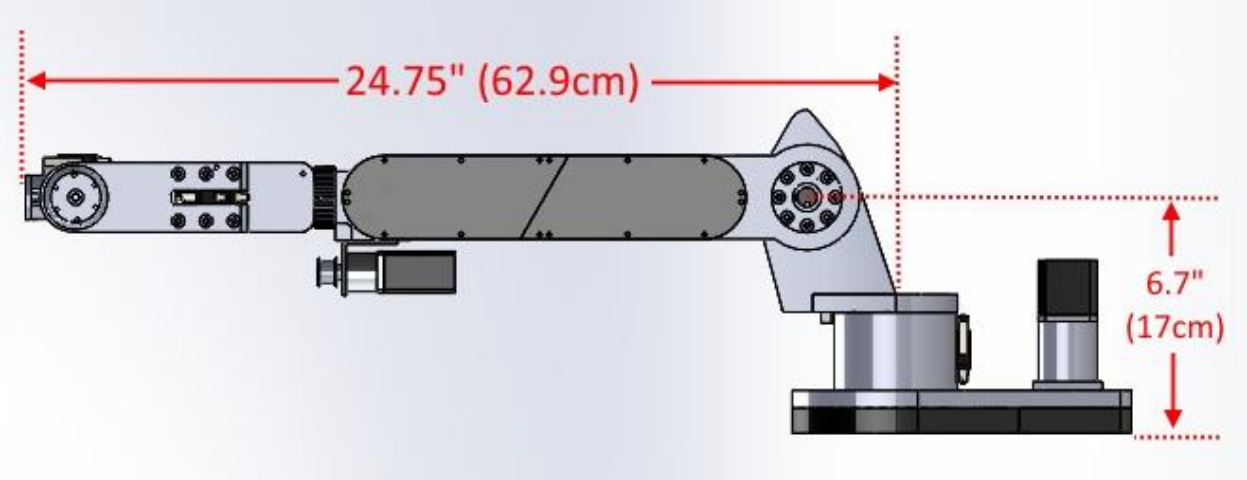
AR2 Robot Documentation

- Reach – 24.75 inches (62.9cm)
- Payload – 4.15 lbs (1.9kg)
- Accuracy - .01mm
- Repeatability - .75mm



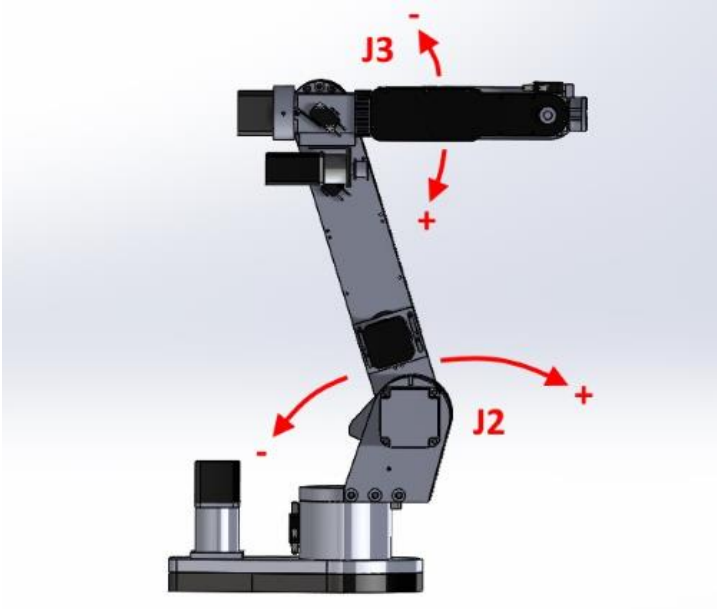
AR2 Robot Startup & Troubleshooting

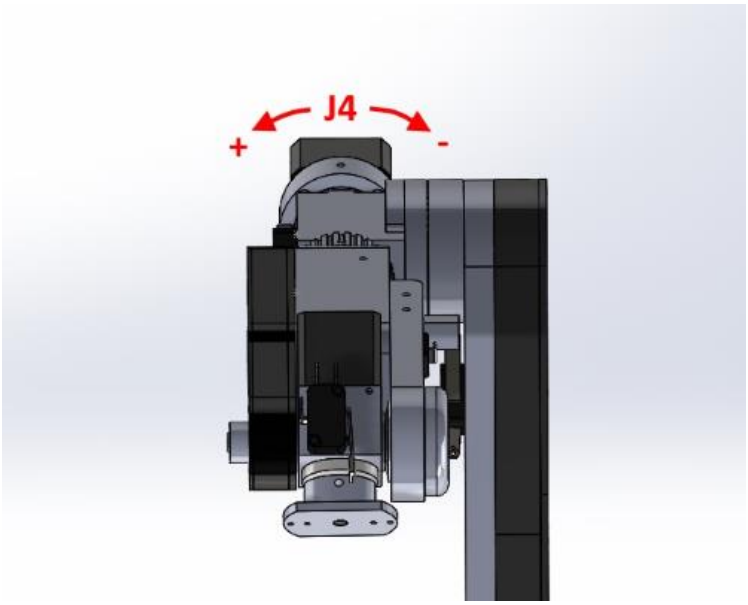
Please start by watching the startup calibration video series starting with this video:
https://www.youtube.com/watch?v=MMESgfq2Mjg

- Before powering up your control box double check all connections per the wiring schematic.
- Check continuity on all wiring harness connectors for each motor and each limit switch. It is imperative that all wire connectors are crimped carefully and checked.
- After powering up your control box use a multi meter to verify you have +5vdc to pulse and direction terminals on each driver.
- Manually depress each limit switch on robot and verify Arduino LED illumines when each switch is pressed.
    - LED should go from dark to bright and should not be dim or partially lit. If this is not the case you likely have a switch shorted or crossed.

    - Verify limit switches are wired such that they provide the Arduino pins a -5vdc signal when at rest and +5vdc when the switch is depressed.
- Before attempting to auto calibrate the robot jog each axis using joint mode a small amount in each direction.
    - Verify each joint is jogging the correct direction per the joint direction drawings at the end of this document.
    - If a particular joint jogs the same direction regardless of pressing the + or – direction buttons you likely have a wiring issue with the direction wire from the Arduino to the driver.
    - If a joint does not move at all but others do you likely have an issue with the step wire from the Arduino to the driver.
- Do not use the auto calibrate button the first time, calibrate each joint one at a time using the individual joint calibration buttons.
    - Have your hand on the E-Stop button the first time so that you can stop the robot and cut power to the drivers if there is an issue with each limit switch and the robot tries to overdrive the joint.
    - You can also manually trigger the switch with your finger before the robot contacts the switch to give you extra time to hit the E-Stop in the event the robot doesn't stop moving when the switch is made.
    - Once all joints and switches are verified to be stopping and calibrating you can then use the auto calibrate to calibrate all joints at the same time.

Axis Directions

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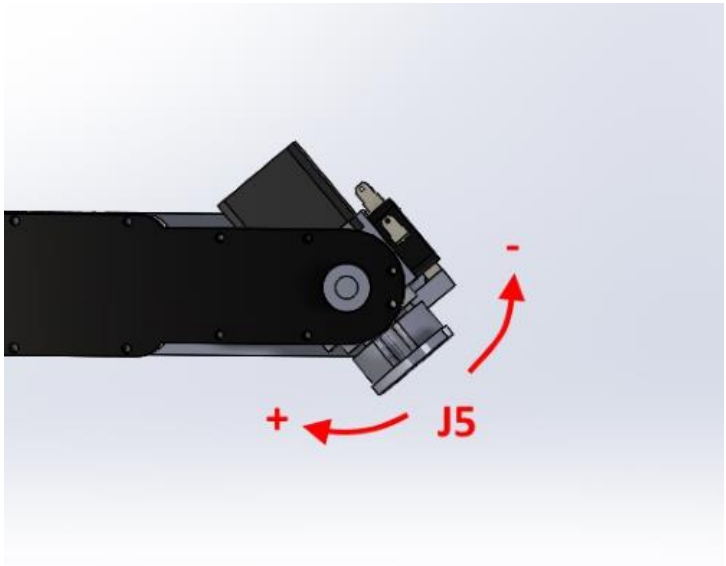
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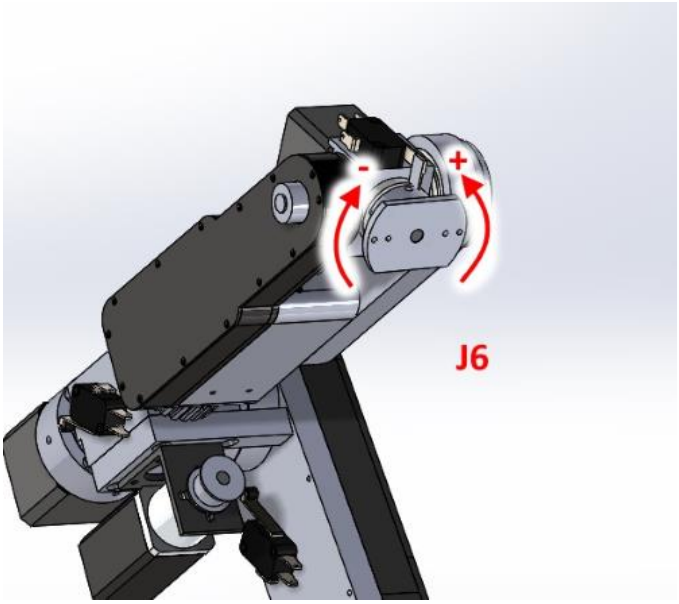
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