

## Reference

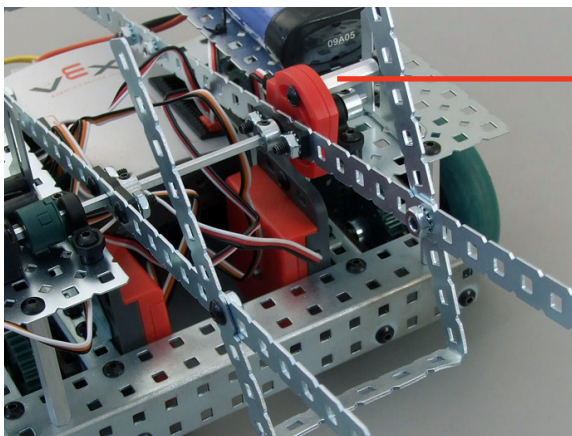
# Potentiometers Overview

The Potentiometer is used to measure the angular position of the axle or shaft passed through its center. The center of the sensor can rotate roughly 265 degrees and outputs values ranging from 0-1023 to the VEX PIC and 0-4095 to the VEX Cortex.



The Potentiometer can be attached to the robot using the mounting arcs surrounding the center of the sensor. The arcs provide flexibility for the orientation of the Potentiometer, allowing the full range of motion to be utilized more easily.

When mounted on the rotating shaft of a moving portion of the robot, such as an arm or gripper, the Potentiometer provides precise feedback regarding its angular position. This sensor data can then be used for accurate control of the robot.



### Mounted Potentiometer

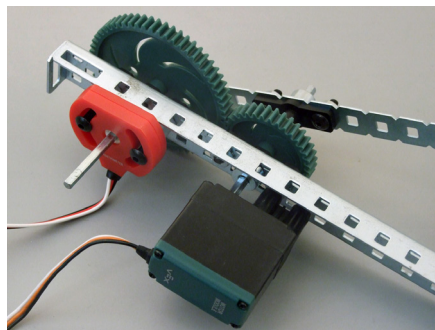
Here, the Potentiometer is mounted on Squarebot 3.0. It provides feedback regarding the position of the movable arm.

**CAUTION!** When mounting the Potentiometer on your robot, ensure that the range of motion of the rotating shaft does not exceed that of the sensor. Failure to do so may result in damage to your robot and the Potentiometer.

### Gear it Up

If the range of motion is too large for the Potentiometer, try developing a gear train that would allow you to measure the rotation of the shaft.

**Note:** Your sensor feedback will lose some resolution.



## Reference

# Potentiometers Natural Language Sample Code

### Limiting Arm Movement with the Potentiometer

This code raises the rotating arm of a robot until the potentiometer reading is 3500, pauses for a moment, and then lowers the arm until the potentiometer reading is 1000. For this example, the arm motor is in motor port 5, and the potentiometer is in analog port 5. If your robot uses different ports, you can change the code where needed.

```
task main ()
{
    robotType(reobot);           // Specifies the robot type

    motor[port5] = 127;          //Powers on the arm
                                //motor at full power

    /*Moves the motor until the potentiometer returns a position
    reading greater than 3500. Also specifies that the
    potentiometer is in analog port 5.*/
    untilPotentiometerGreaterThan(3500, in5);

    motor[port5] = 0;           //Stops the motor.

    wait(0.5);                  //Small pause
                                //between motions

    motor[port5] = -127;        //Powers on the arm
                                //motor in reverse

    /*Moves the motor until the potentiometer returns a
    position reading less than 1000. Also specifies that the
    potentiometer is in analog port 5.*/
    untilPotentiometerLessThan(1000, in5);

    motor[port5] = 0;           //Stops the motor.
}
```