Potentiometer output analog value

1. Learning target

1.1 In this course, we will learn how to use pins of the Raspberry Pi Pico board.

1.2 How to use potentiometer module.

2. Preparation

Raspberry Pi Pico board *1

Pico sensor expansion board *1

PC *1

USB data cable *1

Potentiometer *1

Male-to-male DuPont line *3

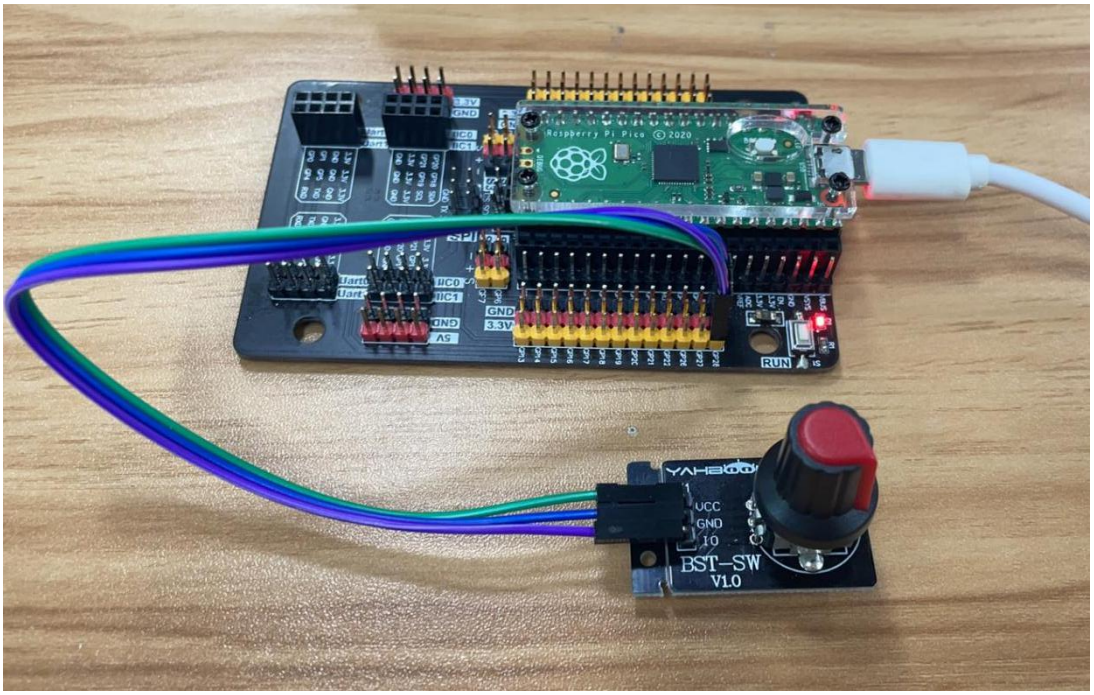
Working principle:

The potentiometer (adjustable resistor), it has three terminals, and its resistance can be adjusted according to a certain change rule.

Potentiometers are usually made up of resistors and rotating or sliding systems. This potentiometer, the analog value of the OUT pin output is 0~1023.

3. About wiring

Potentiometer module	Pico sensor expansion board
OUT	GP28
GND	GND
VCC	3.3V



4. About code

Thonny programming

About how to using ThonnyIDE, please check the tutorials in【2.Development environment】

```
from machine import ADC
import utime
# Initialize the potentiometer to pin 28 (ADC function)
rp = ADC(28)

# Read the current analog value of the potentiometer and return [0, 100]
def get_value():
    return int(rp.read_u16() * 101 / 65536)

# Print the current value of the potentiometer cyclically, value=[0, 100]
while True:
    value = get_value()
    print(value)
    utime.sleep(.1)
```

5. Phenomenon

Click the green run button  of Thonny IDE to start running the program. Click the red stop button  to stop the program. When the program is running, the

shell window under Thonny IDE will print the current analog value of the potentiometer, and adjust the knob to see that the analog value becomes larger or smaller.