# Pico Servo Driver

Servo Driver Module For Raspberry Pi Pico, 16-Channel Outputs, 16-Bit Resolution

## Features

- Standard Raspberry Pi Pico header, supports Raspberry Pi Pico series boards
- Up to 16-Channel servo/PWM outputs, 16-bit resolution for each channel
- Integrates 5V regulator, up to 3A output current, allows battery power supply from the VIN terminal
- Standard servo interface, supports commonly used servo such as SG90, MG90S, MG996R, etc.
- Exposes unused pins of Pico, easy expansion

## Specification

- Operating voltage: 5V (Pico) or 6~12V (VIN terminal)
- Logic voltage: 3.3V
- Servo voltage level: 5V
- Control interface: GPIO
- Mounting hole size: 3.0mm
- Dimensions: 65 × 56mm

## Pinout

Channel 0~15, for concurrently connecting up to 16x servo

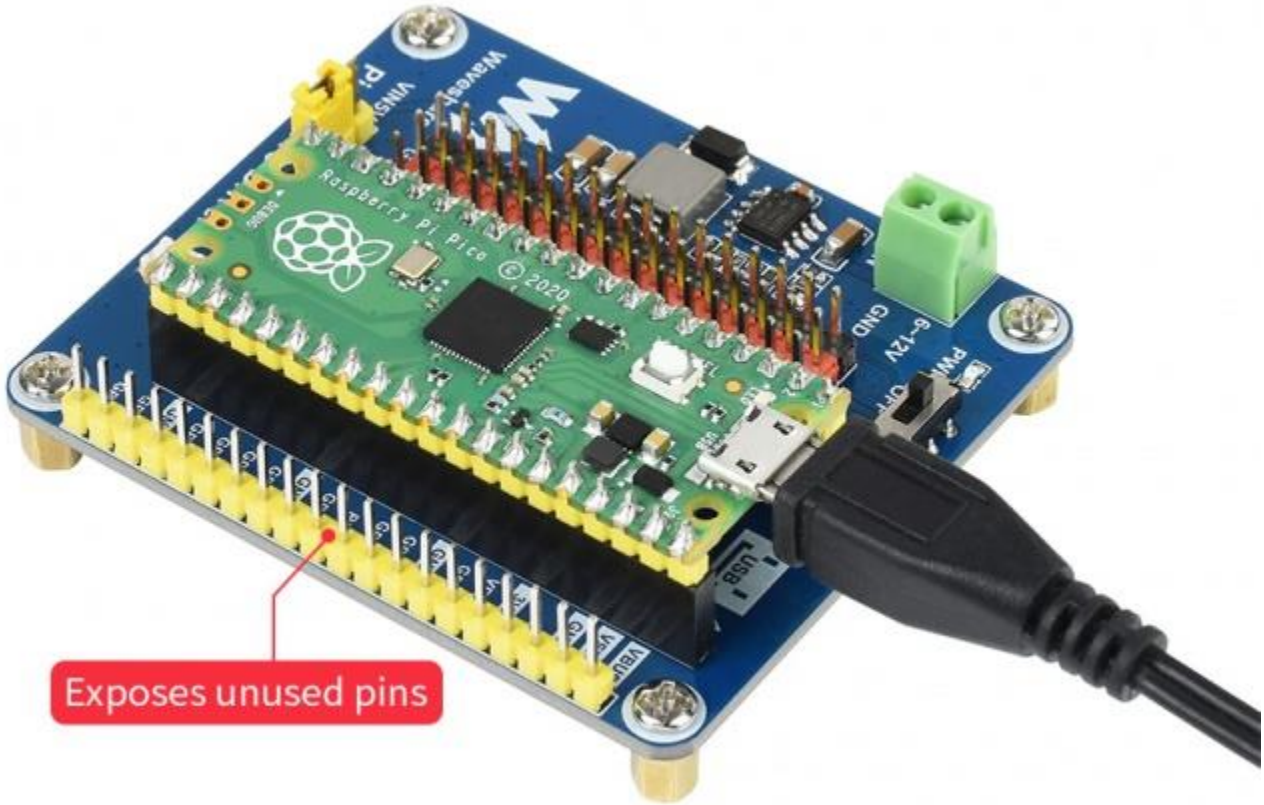
16x channels servo headers

- G pins: GND
- V pins: 5V power
- S pins: PWM signal

* please correctly connect the servo, it would not work if the connection were reversed.


## Hardware connection

Connect the Driver board to Pico, please take care of the direction according to the USB silk screen printing.




## Setup environment

Please refer to Raspberry Pi's guide: https://www.raspberrypi.org/documentation/pico/getting-started/

## Raspberry Pi

1. Open a terminal of Raspberry Pi
2. Download and unzip the demo codes to directory Pico C/C++ SDK

```
sudo apt-get install p7zip-full
cd ~
sudo wget  https://www.waveshare.com/w/upload/3/31/Pico_Servo_Driver_Code.7z
7z Pico_Servo_Driver_Code.7z -o./Pico_Servo_Driver_Code.7z
cd ~/Pico_Servo_Driver_Code
```

### C

1. Hold the BOOTSEL button of Pico, and connect the USB interface of Pico to Raspberry Pi then release the button.
2. Compile and run the pico_servo_driver examples

```
cd ~/Pico_Servo_Driver_Code/c/build/
cmake ..
make
sudo mount /dev/sda1 /mnt/pico && sudo cp rtc.uf2 /mnt/pico/ && sudo sync && sudo umount /mnt/pico && sleep 2 && sudo minicom -b 115200 -o -D /dev/ttyACM0
```

### python

1. Refer to Raspberry Pi's guides to setup Micropython firmware for Pico
2. Open the Thonny IDE, update it if your Thonny doesn't support Pico

```
sudo apt upgrade thonny
```

3. Click File->Open...->python/Pico_Servo_Driver_Code/python/servo.py to open the example and run it.

## Document

- Schematic

## Demo codes

- Demo codes