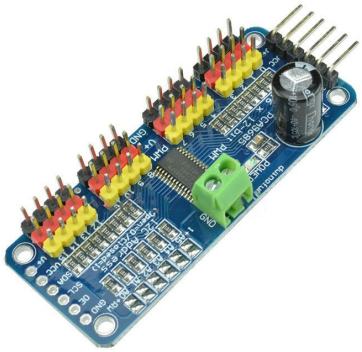
PCA9685 16-Channel 12-Bit I2C PWM Servo Motor Driver Module



This PCA9685 i2c-controlled 16-Channel 12-Bit PWM Servo Driver can help a lot when there are insufficient PWM output pins for the MCU in your project. Make a robot, hexapod walker, or drive multiple LEDs with precise PWM control.

Using only two pins, control 16 free-running independently-addressable PWM outputs! You can even chain up 62 breakouts to control up to 992 PWM outputs. Simply enable the I2C communication between the MCU and the PCA9685 16-channel 12-bit PWM driver, so as to control multiple servos simultaneously.

Features:

- i2c-controlled PWM driver with a built-in clock. That means that you do not need to continuously send it a signal, tying up your microcontroller. It is completely free running!
- 5V compliant, you can control it from a 3.3V microcontroller and still safely drive up to 6V outputs (this is good for when you want to control white or blue LEDs with 3.4+ forward voltages)
- 6 address select pins so you can wire up to 62 of these on a single i2c bus, a total of 992 outputs
- Adjustable frequency PWM up to about 1.6 KHz
- 12-bit resolution for each output. For servos, that means about 4us resolution at 60Hz update rate
- Configurable push-pull or open-drain output
- Output enable pin to quickly disable all the outputs
- Terminal block for power input (or use the 0.1" breakout pins on the side)
- Reverse polarity protection on the terminal block input
- Green power-on LED
- 3 pin connectors in groups of 4 so you can plug in 16 servos at once (Servo plugs are slightly wider than 0.1" so you can only stack 4 next to each other on 0.1" header)
- Chainable design
- 220 Ohm series resistors on all the output lines to protect them, and to make driving LEDs trivial
- Solder jumpers for the 6 address select pins

Resources:

PCA-9685 Servo Motor Control Using Arduino Tutorial by Brainy-Bits on Youtube:
http://envistia.info/youtubepca9685

P/N EM-MOTOR-0003