



2-Channel 5V PWM Pulse / Square Wave Generator Module



This 2-channel PWM pulse / square wave generator provides two pulse / square wave outputs with independent control over each channel's duty cycle and frequency using the straightforward LED display and set/up/down buttons. It can also be programmed through its serial RS-232 interface.

Applications for the module include:

- A square wave generator to generate square wave signals for experimentation and control
- Driving stepper motors
- Generating adjustable pulses for microcontroller use
- Generating adjustable pulses for PWM control of lighting and LEDs

Features and Specifications:

- Frequency and duty cycle for each channel can be set individually
- Operating Voltage: 5-30V, supports MicroUSB 5V input power
- Frequency Range: 1Hz - 150KHz
- Frequency Precision: 2%
- Output Signal Capacity: Up to 30mA output current
- Output Voltage: Same as input voltage, or can be independently varied from 5V to 30V with an external power supply input
- Ambient Operating Temperature: -30°C to 70°C

Operating Parameter Settings:

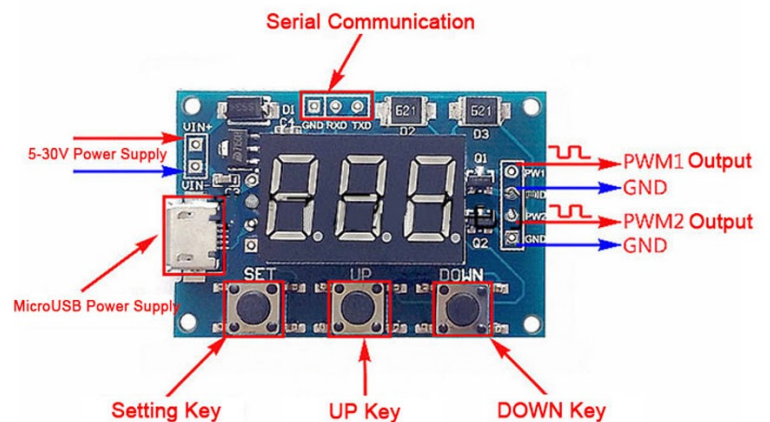
The module has 3 control buttons: Set, Up, and Down

Short pressing the SET key will step the display through the 4 operating parameter values:

- FR1: PWM1 frequency
- dU1: PWM1 duty cycle
- FR2: PWM2 frequency
- dU2: PWM2 duty cycle

When each parameter is selected by pressing the SET button, the parameter name will flash before displaying the value.

After the parameter is selected, press the UP and DOWN buttons to modify the parameter's value.



Duty cycle can be set from 1% to 100% in 1% increments.

The frequency range can be selected before entering the value by long-pressing the SET button (approximately 1 second or longer):

XXX Display (Default): Frequency values from 1Hz - 999Hz frequency range

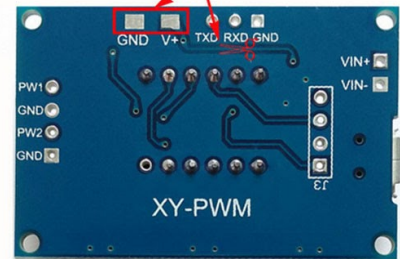
XX.X Display (1 long press of the SET button): 0.1KHz - 99.9KHz frequency range
(i.e. 01.2 = 1.2KHz, 55.5 = 55.5KHz)

X.X.X. Display (2 long presses of the SET button): 1KHz-150KHz frequency range
(i.e. 0.3.5. = 3.5KHz, 1.0.0. = 100KHz)

Changing the Output Voltage:

The output voltage level is normally the same as the input voltage (nominally 5V). This can be changed by applying an external DC power supply of the desired voltage, separate from the 5V support power supply, to the pads on the back side of the board, and cutting the trace as shown in the drawing at right. The output voltage will then be set by the voltage of the DC power supply.

Cut off this wire, and connect with your external power (5-20V), then PWM output peak voltage is the power voltage



Serial Port RS-232 Control:

Communication Standard:

9600 bps

Data Bit: 8

Stop Bit: 1

Verify Bit: None

Flow Control: None

Setting PWM Frequency via the Serial Port:

1. "S1FXXXT": set PWM1 frequency as XXX HZ (001~999)
2. "S1FXX.XT": set PWM1 frequency as XX.X KHZ (00.1~99.9)
3. "S1F:X.X.X.T": set PWM1 frequency as XXX KHZ (0.0.1.~1.5.0.)
4. "S1": PWM1
5. "S2": PWM2
6. "F": Frequency
7. "D": Duty cycle
8. "T": Stop sign bit

Setting PWM Duty Cycle via the Serial Port:

1. "S1DXXXT": set PWM1 duty cycle as XXX; (001~100)
2. "S2DXXXT": set PWM2 duty cycle as XXX; (001~100)

Setting successfully back: DOWN

Setting unsuccessfully back: FALL