**2-channel PWM pulse frequency duty cycle adjustable module, square wave rectangular wave signal generator, stepper motor drive**

**Module Highlights:**

**1. Two independent PWM outputs, frequency and duty cycle can be set separately;**

**2. Wide frequency range and high precision;**

**3. Serial port communication**

**Dimensions: 41\*28mm Thickness: 1.6mm**

**1. Module description**

**Two independent PWM outputs, which can be set to frequency and duty cycle respectively;**

**Frequencies are divided into three ranges:**

**1. XXX (no decimal point): The minimum unit is 1Hz, and the value range is 1Hz~999Hz;**

**2. XX.X (decimal point in 10 places): the smallest unit is 0.1Khz, and the value range is 0.1KHz~99.9KHz**

**3. X.X.X. (three digits have decimal points): the smallest unit is 1Khz, and the value range is 1KHz~150KHz**

**e.g. Frequency display: 100 indicates PWM output pulse of 100Hz;**

**54.1 indicates PWM output pulse of 54.1KHz;**

**1.2.4. Indicates PWM output pulse of 124KHz**

**占空比取值范围：0~100；**

**The three frequency ranges share a duty cycle, and all set parameters are saved when the power is down.**



**2. Parameter setting**

**The module has 3 buttons: Set, Up, Down;**

**1. By pressing the [Set] button, you can switch the display of four parameter values (FR1: PWM1 frequency; dU1: PWM1 duty cycle; FR2: PWM2 frequency; dU2: PWM2 duty cycle), and the corresponding parameter name will flash before switching.**

**2. Press the [Up] and [Down] keys directly to modify the current parameter value (long press to quickly add or decrease).**

**3. There are 3 frequency values for each of the two PWMs, and the duty cycle of the 3 frequencies is the same by pressing and holding the [SET] button in the frequency display interface. (XXX: Range: 1Hz~999Hz; XX.X: range 0.1Khz~99.9Khz;X.X.X.: range 1Khz~150Khz,).**

**3. Module parameters:**

**1. Working voltage: 5--30V, support micro USB 5.0V power supply;**

**2. Frequency range: 1Hz~150KHz;**

**3. Frequency accuracy: the accuracy in each range is about 2%;**

**4. Signal load capacity: the output current can be about 8--30mA;**

**5. Output amplitude: default 5V V-pp (can be changed by external power supply);**

**6. Ambient temperature: -30~+70°C.**

**4. Scope of application:**

**1. Used as a square wave signal generator to generate square wave signals for experimental development;**

**2. It is used to generate a square wave signal to drive the stepper motor driver;**

**3. Generate adjustable pulses for MCU use;**

**4. Generate adjustable pulses and control related circuits (PWM dimming speed regulation and other applications).**

**5. Serial port control**

**Communication standard: 9600 bpsData**
 **bits: 8 stop bits**
**: 1 check bit**
**: noneFlow control**
**: none**

**1. Set the frequency of PWM**

**"S1FXXXT": Set the frequency of PWM1 to XXX HZ (001~999).**

**"S1FXX.XT": sets the frequency of PWM1 to XX.X KHZ (00.1~99.9).**

**"S1F:X.X.X.T": SET THE FREQUENCY OF PWM1 TO XXX KHZ (0.0.1.~1.5.0.).**

**‘S1’:  PWM1**

**‘S2’： PWM2**

**'F': Frequency**

**‘D’:占空比**

**'T' is the end flag bit**

**2. Set the duty cycle of PWM**

**"S1DXXXT": set the duty cycle of PWM1 to XXX;(001~100).**

**"S2DXXXT": set the duty cycle of PWM2 to XXX;(001~100).**

**If the setting is successful, it will return: DOWN;**

**If the setting fails, it will return: FALL.**