ZK-PP SERIES
PWM & PULSE SIGNAL GENERATOR

User's Manual

versions: V1.0

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Catalogue

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1.General Description

This series of products are PWM and pulse signal generator.There are PWM mode and pulse mode.Only one mode can be used at a time, but the two modes can be switched at any time.

Practical scenes

1.PWM signal generator, square wave rectangular wave signal generator

2. Used to generate a square wave rectangular wave signal, which is supplied to a DC motor or a stepper motor driver; Stepper motor, servo motor, electric gripper, robot arm

3. ZK-PP1 and ZK-PPIK can combine the driver to realize dimming, speed regulation, control solenoid valve, etc. ZK-PP2 and ZK-PP2K is possible to directly drive loads such as electric lights, motors, and solenoid valves.

Features:

1.1 Two modes can be selected:

PWM mode - frequency (continuous), duty cycle, Pulse number is not adjustable, continue to send waveform;

PULSE mode - positive pulse width time, negative pulse width time, delayed start time, and adjustable number of pulses.

1.2 With start-stop button(ZK-PP1K and ZK-PP2K external switch can also be used to control output signal ON/OFF).

1.3 Wide voltage input 3.3-30V, with anti-reverse protection, 5.08mm terminal wiring

2.Technical Parameters

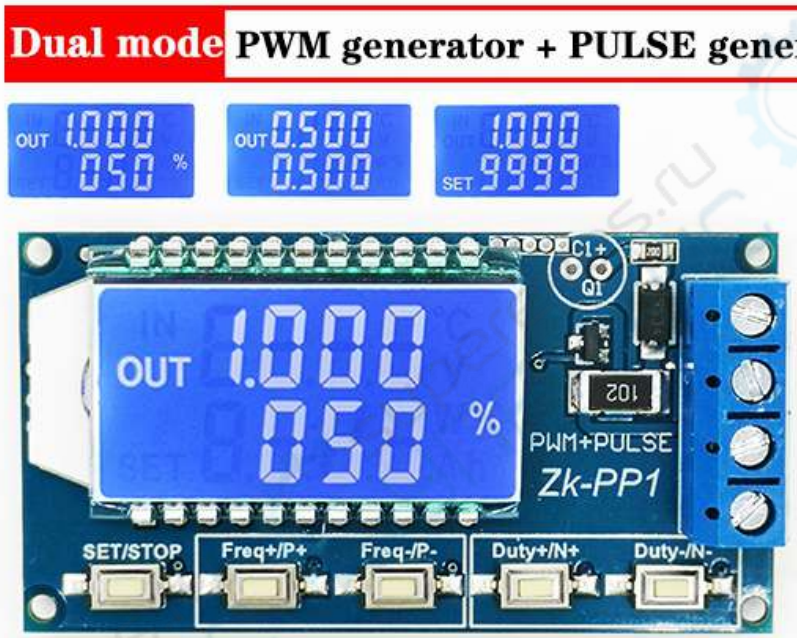
2.1 Working voltage: 3.3V~30V, with anti-reverse protection.
2.2 Frequency range: 1Hz~150KHz, accuracy about 1%.
2.3 duty cycle range: 0-100%, 1% stepping.
2.4 number of pulses: 1-9999, or infinite (display '----' stands for infinity).
2.5 delay output time: 0.000s-9999s, the minimum can be set 1ms.
2.6 positive and negative pulse width length: 0.000s-9999s, the minimum can be set 1ms.
2.7 signal loading capacity:
ZK-PP1 :less than 30mA.
ZK-PP2 :less than 8A.
ZK-PP1K:less than 30mA.
ZK-PP2K:less than 8A.

2.8 Output signal amplitude: amplitude is equal to the supply voltage.
2.9 Product size:
ZK-PP1 :60mm*32mm*10mm
ZK-PP2 :60mm*32mm*10mm
ZK-PP1K:79mm*43mm*30mm
ZK-PP2K:79mm*43mm*30mm
2.10 Product Weight:
ZK-PP1 :18g
ZK-PP2 :20g
ZK-PP1K:40g
ZK-PP2K:42g

2.11 Packing: Anti-static bag

3. Product Picture

ZK-PP1



Stepper motor, servo motor, electric jaw, in-stead of PLC pulse

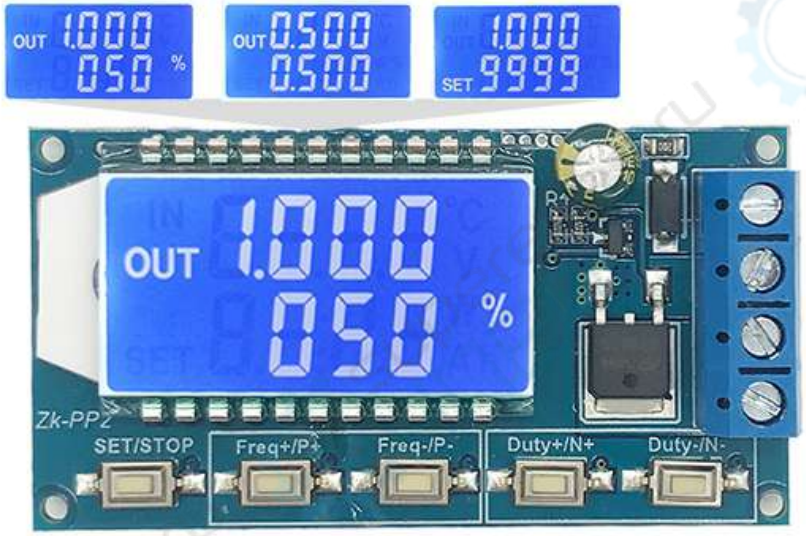
Start stop button

Frequency, duty cycle can be set

Pulse number, pulse width, power-on delay time can be set

ZK-PP2

Power output	PWM generator + PULSE generator



LED brightness adjustment

Motor speed adjustment

Solenoid valve timing loop, power-on delay start

Switch fatigue test, voltage sag test...

ZK-PP1K

Dual mode PWM pulse generator
Pulse Number
ON/OFF Button
ON/OFF External
Fre- quency Adjust
Duty cycle Adjust
Pulse width Adjust
Delay Adjust
FREQ/P
OUT 1.000
050 %
DUTY/N
SET
ZK-PP1K
PWM & PULSE GENERATOR
ON
PWM: 1HZ-150KHZ/0-100%
PULSE: 1ms-9999s/1-9999

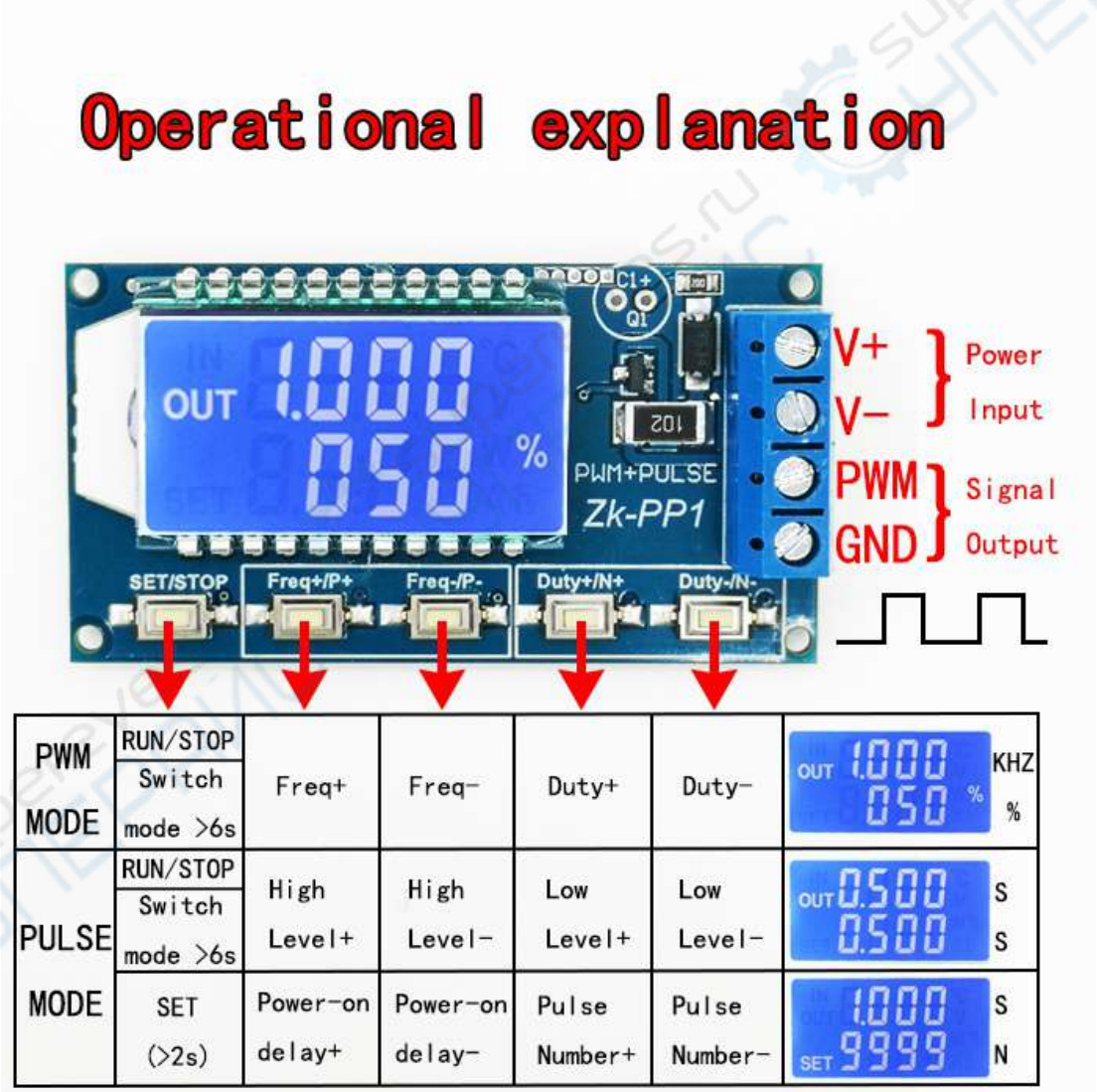
ZK-PP2K

Dual mode PWM Pulse Driver
Pulse Number
ON/OFF Button
ON/OFF External
Fre- quency Adjust
Duty cycle Adjust
Pulse width Adjust
Delay Adjust
FREQ/P
OUT 1.000
050 %
DUTY/N
SET
ZK-PP2K
High Power PWM Driver
ON
PWM: 1HZ-150KHZ/0-100%
PULSE: 1ms-9999s/1-9999

4. Product Overview

4.1 Operation Overview

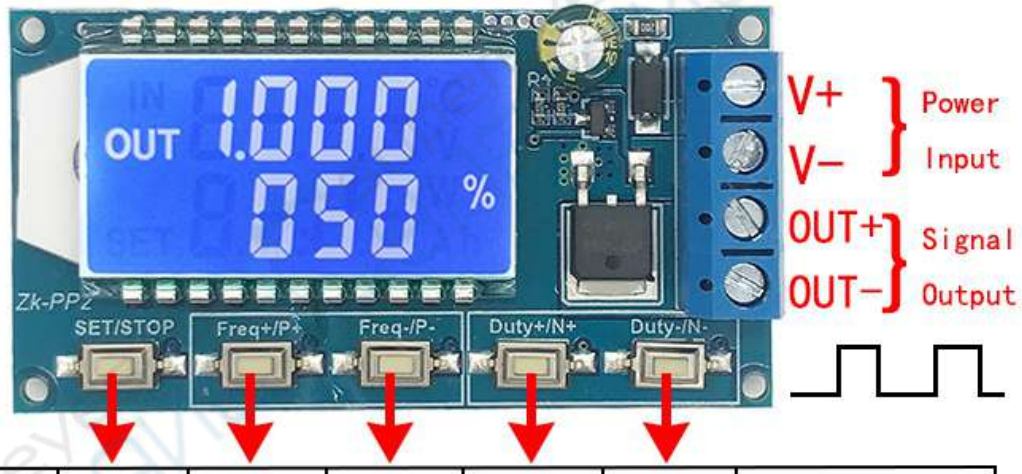
ZK-PP1



PWM MODE	RUN/STOP Switch mode >6s	Freq+	Freq-	Duty+	Duty-	OUT 1.000 050 % KHZ %
PULSE MODE	RUN/STOP Switch mode >6s	High Level+	High Level-	Low Level+	Low Level-	OUT 0.500 0.500 S S
	SET (>2s)	Power-on delay+	Power-on delay-	Pulse Number+	Pulse Number-	1.000 SET 9999 S N

ZK-PP2

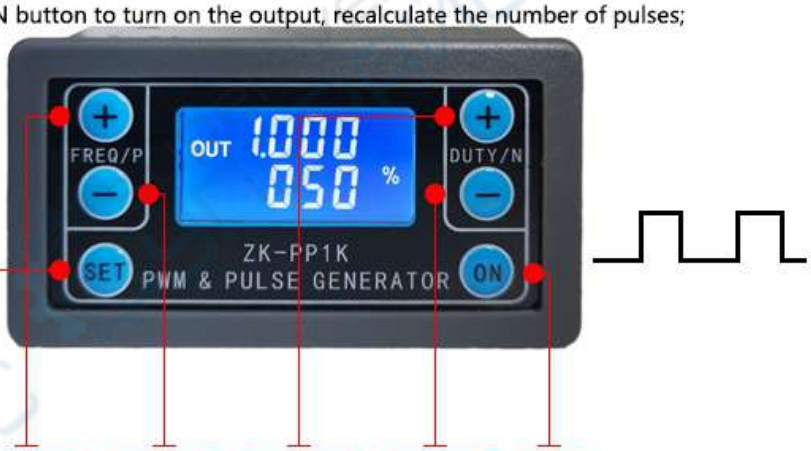
Operational explanation



PWM MODE	RUN/STOP Switch mode >6s	Freq+	Freq-	Duty+	Duty-	KHZ %
PULSE MODE	RUN/STOP Switch mode >6s	High Level+	High Level-	Low Level+	Low Level-	S S
	SET (>2s)	Power-on delay+	Power-on delay-	Pulse Number+	Pulse Number-	S N

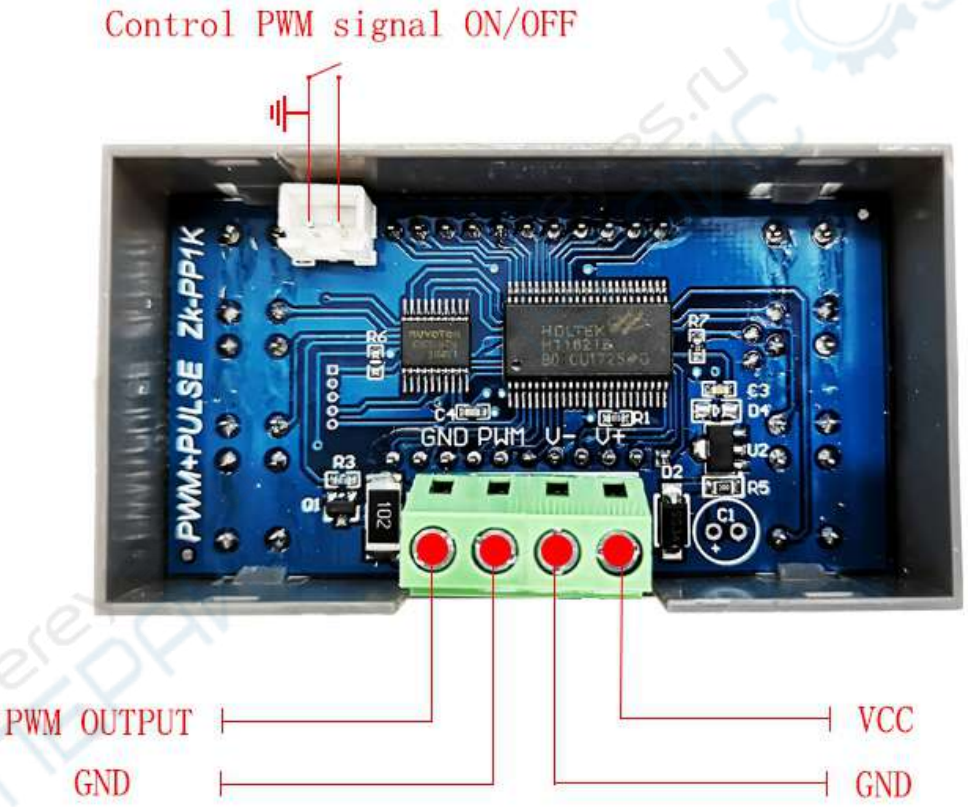
ZK-PP1K

1. There is an output waveform when power is turned on;
2. Waveform amplitude = power supply voltage;
3. The number of output pulses reaches the set value, the output is automatically stopped, and 'OUT' disappears;
4. Press the ON button to control the presence or absence of the waveform. OUT disappears to indicate no output waveform, and output 0;
5. Power-on reset or ON button to turn on the output, recalculate the number of pulses;



PWM MODE	Switch mode >6s	Freq+	Freq-	Duty+	Duty-	RUN /STOP	OUT 1.000 050 % KHZ %
PULSE MODE	Switch mode >6s	High Level+	High Level-	Low Level+	Low Level-	RUN /STOP	OUT 0.500 0.500 S S
	SET (>2s)	Power-on delay+	Power-on delay-	Pulse Number+	Pulse Number-	RUN /STOP	SET 1.000 9999 S N

ZK-PP1K

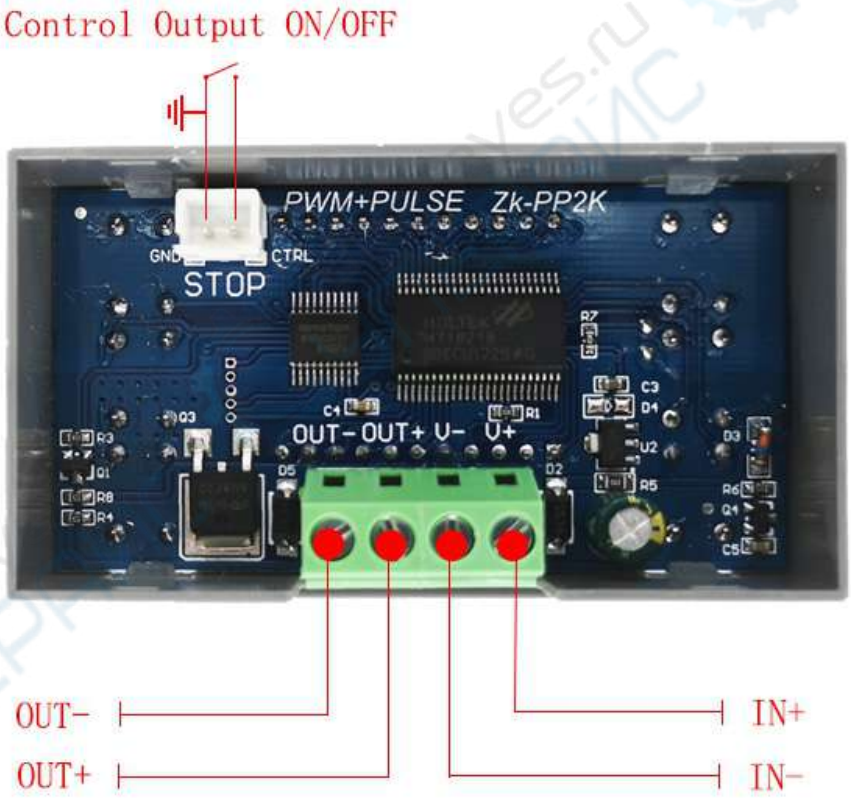

Control PWM signal ON/OFF
PWM+PULSE Zk-PP1K
GND PWM V- V+
PWM OUTPUT
GND
VCC
GND

ZK-PP2K

1. There is an output waveform when power is turned on;
2. Waveform amplitude = power supply voltage;
3. The number of output pulses reaches the set value, the output is automatically stopped, and 'OUT' disappears;
4. Press the ON button to control the presence or absence of the waveform. OUT disappears to indicate no output waveform, and output 0;
5. Power-on reset or ON button to turn on the output, recalculate the number of pulses;

PWM MODE	Switch mode >6s	Freq+	Freq-	Duty+	Duty-	RUN /STOP	OUT 1.000 050 % KHZ %
PULSE MODE	Switch mode >6s	High Level+	High Level-	Low Level+	Low Level-	RUN /STOP	OUT 0.500 0.500 S S
	SET (>2s)	Power-on delay+	Power-on delay-	Pulse Number+	Pulse Number-	RUN /STOP	1000 SET 9999 S N

ZK-PP2K


Control Output ON/OFF
PWM+PULSE Zk-PP2K
GND
CTRL
STOP
OUT- OUT+ V- V+
OUT-
OUT+
IN+
IN-

4.2 Mode Overview

note: ZK-PP1,ZK-PP2 and ZK-PP1K have the same mode.

4.2.1 PWM mode (display has "%" for PWM mode)

The factory default mode is PWM mode, FREQ+ and FREQ-key set frequency, DUTY+ and DUTY- button set duty cycle; short press ON button control signal output or stop, stop output is 0, the screen displays “OUT” mark as There is output, otherwise it stops output; the default factory frequency is 1KHZ and the duty cycle is 50%.

If you want to switch to PULSE mode, long press the SET button (more than 6 seconds), do not release, you will see the screen change, "%" disappears, it is PULSE mode.

4.2.2 PULSE mode (No "%" on the right side of the display is PULSE mode)

The line above the LCD screen displays the positive pulse width time. The P+ and P- buttons set the parameter. The line below the LCD screen displays the negative pulse width time. The N+ and N- buttons set the parameter. Press the ON button to control the signal output or stop. When the output is stopped, the output is 0. The screen displays “OUT” for output, otherwise it stops output; the default factory positive pulse width is 0.5 seconds and the negative pulse width is 0.5 seconds.

Pulse number and delay time setting - In PULSE mode, press and hold the SET button for 2 seconds and then release, enter the pulse number and delay time setting interface, the screen displays SET, it will be turned off and cleared after entering. ;P+ and P-

seconds, the number of pulses is infinite (display ----); then press SET button 2 In seconds, it will automatically return to the pulse interface, press the ON button, after the delay setting time, start to issue the set number of pulses. If the number of pulses is sent, it will automatically output 0. If the period is not sent, pressing the ON button will turn off. The output pulse is turned off and cleared, and the set number of pulses is issued each time it is started. After the number of pulses is sent, the display 'OUT' automatically disappears.

4.3 Interface Overview

note: ZK-PP1,ZK-PP2 ZK-PP1K and ZK-PP2K have the same interface.

Fre:1.000Khz

Duty:50%

PWM mode interface

High:0.500s

Low:0.500s

Pulse mode interface

Delay:1.000s

Number:9999

Pulse mode setting interface

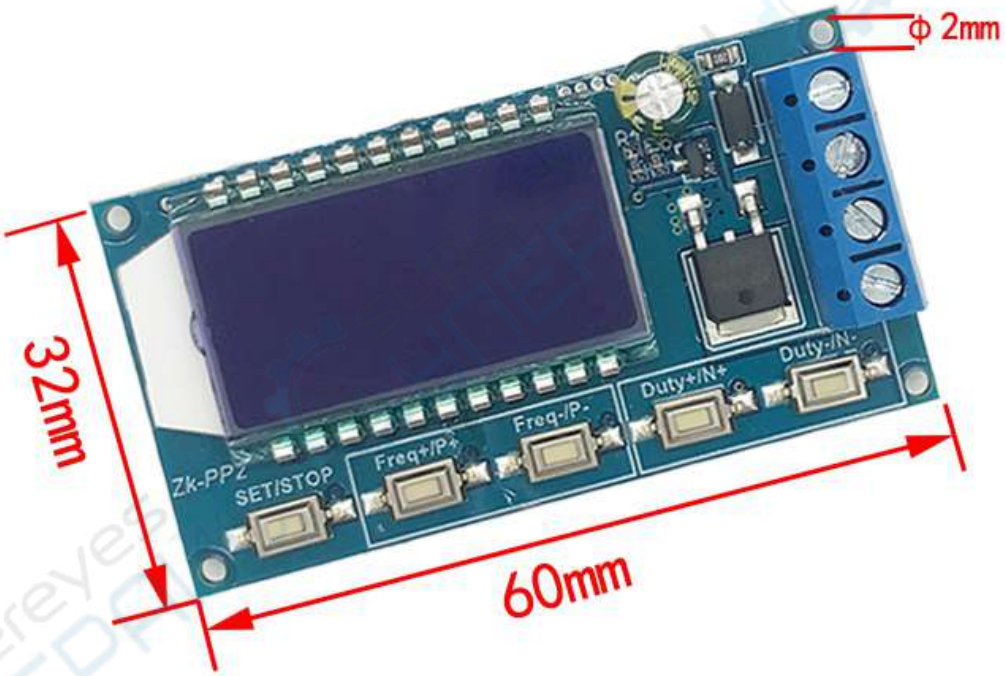
4.4 Application Example

4.4.1 PWM output 20KHZ, 60% duty cycle: Select PWM mode, the frequency is set to 20.00, and the duty ratio is set to 060%.
4.4.2 The output is turned on for 0.6 seconds and turned off for 0.2 seconds. Infinite loop: select PULSE mode, the positive pulse width is set to 0.600, the negative pulse width is set to 0.200, the delay time is set to 0.000, and the number of pulses is set to --- -.
4.4.3 Power on or press the start button, delay 5 seconds, then the output is turned on for 0.6 seconds, off 0.2 seconds, infinite loop: select PULSE mode, positive pulse width is set to 0.600, negative pulse width is set to 0.200, delay The time is set to 5.000 and the number of pulses is set to ----.
4.4.4 Power on or press the start button, delay 5 seconds, then output high level 10ms low level 10ms pulse 100: select PULSE mode, positive pulse width is set to 0.010, negative pulse width is set to 0.010, delay The time is set to 5.000 and the number of pulses is set to 0100.
4.4.5 Power-on delay for 10 seconds, then permanently output signal: select PULSE mode, the positive pulse width is set to a number greater than 0, the negative pulse width is set to 0, the delay time is set to 10.00 seconds, and the pulse number is infinite. (----).
4.4.6 Other applications can explore or consult customer service
All setup parameters are not lost when they are turned off.

5. Product Appearance

ZK-PP1

ZK-PP2



weight: 20g

ZK-PP1K

weight:40g

ZK-PP2K

weight:40g
79mm
43mm
39mm
71mm
30mm
FREQ/P
DUTY/N
SET
OUT
ZK-PP2K
High Power PWM Driver

6. Matters Need Attention

6.1 Please read the manual carefully before using the product ! If the module is damaged due to wrong use, or the device is removed without permission, it shall not be returned or replaced.

6.2 Power supply voltage shall use 3.3V-30V DC power supply, do not use AC power !!! If the voltage is over voltage, the module will be burnt after power on.

6.3 please ensure that the input and output wiring is correct before power on, otherwise it may burn the product circuit.

6.4 Pay attention to the module shall not be affected by moisture, shall not make the components on the circuit board short-circuit, shall not touch the pins and pads of the components on the board by hand.

6.5 Disclaimer: this product is not allowed to be used in medical, life-saving, flammable, explosive and other fields and occasions. Our factory will not assume any responsibility for the consequences caused thereby.