

DIYElectronic ZK-PP2K

DIYElectronic ZK-PP2K PWM Signal Generator Instruction Manual

Model: ZK-PP2K

1. INTRODUCTION

The ZK-PP2K signal generator is a versatile device designed to produce electrical signals with adjustable frequency, square wave, and pulse characteristics. It supports dual operation modes: PWM (Pulse Width Modulation) mode and PULSE mode. This module features high current output capability, allowing direct connection to motors or lamps. It serves as a signal or excitation source for various testing and practical applications in production and technology.

2. FEATURES

- Dual operating modes: PWM mode and PULSE mode.
- High-definition LCD display for clear parameter viewing.
- Adjustable frequency control.
- Adjustable duty cycle control.
- High precision signal generation.
- Power-down memory function retains settings.
- Single-channel signal output.
- Reverse polarity protection.
- Enabled/disabled output control.
- Direct drive capability for LEDs, motors, and solenoid valves.

3. SPECIFICATIONS

Product Name	ZK-PP2K PWM Signal Generator
Model	ZK-PP2K
Work Voltage	DC 3.3V-30V

Frequency Range	1Hz~150KHz
Frequency Accuracy	2%
Duty Cycle Range	0.00%-100%
Output Current	8A (Max)
Number of Pulses	1~9999 or Infinite
Delay Time	0.000s~9999s
Pulse Width	0.000s~9999s
Time Accuracy	1ms
Output Amplitude	Same as input voltage
Work Temperature	-20°C~85°C
Work Humidity	0%~95%RH
Dimensions	79mm * 43mm * 26mm

MOKCUM



Figure 3.1: Physical Dimensions. This image provides the physical dimensions of the ZK-PP2K module, measuring 79mm in length, 43mm in width, and 26mm in height, with mounting hole spacing of 71mm by 39mm.

4. SETUP AND WIRING

Proper connection of the power supply and output is crucial for the safe and correct operation of the ZK-PP2K module. Refer to the wiring diagram below for guidance.

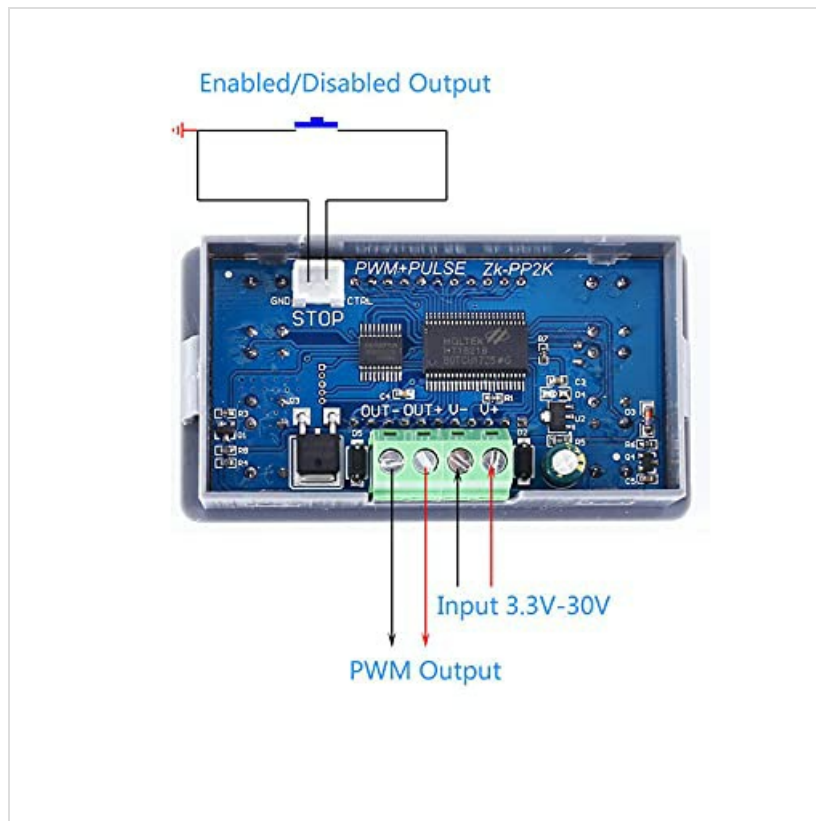


Figure 4.1: Wiring Diagram. This image illustrates the connection points for the ZK-PP2K module. The input power (DC 3.3V-30V) connects to the V+ and V- terminals. The PWM output is taken from the OUT+ and OUT- terminals. An optional external switch for enabling/disabling output can be connected between the CTRL and GND pins.

- **Power Input:** Connect a DC power source (3.3V to 30V) to the designated input terminals (V+ and V-). Ensure correct polarity.
- **PWM Output:** Connect your load (motor, lamp, solenoid valve) to the PWM output terminals (OUT+ and OUT-).
- **Enabled/Disabled Output Control:** An external switch can be connected between the CTRL pin and GND to enable or disable the output signal.

5. OPERATION

The ZK-PP2K operates in two primary modes: PWM Mode and PULSE Mode. The device features an LCD display and several buttons for configuration.



Figure 5.1: ZK-PP2K Front Panel. This image shows the front of the ZK-PP2K module, highlighting the LCD display and control buttons: FREQ+ (Frequency Increase), FREQ- (Frequency Decrease), DUTY+ (Duty Cycle Increase), DUTY- (Duty Cycle Decrease), SET, and ON (Enable/Disable Output).

5.1. Button Functions

- **FREQ+ / FREQ-:** Adjusts frequency in PWM mode, or positive pulse width in PULSE mode.
- **DUTY+ / DUTY-:** Adjusts duty cycle in PWM mode, or negative pulse width in PULSE mode.
- **SET:** Used to switch between parameters for adjustment (e.g., frequency, duty cycle, pulse count, delay). Long press to switch between PWM and PULSE modes.
- **ON:** Toggles the output signal on or off.

5.2. Work Modes

The ZK-PP2K supports two distinct operating modes:

5.2.1. PWM Mode

This mode is indicated by a '%' symbol on the LCD display. It is the factory default mode.

- **Frequency Adjustment:** Use the **FREQ+** and **FREQ-** buttons to set the output frequency. Short presses adjust in

minimum units, while holding the button allows for continuous adjustment. The frequency range is 1Hz to 150KHz.

- **Duty Cycle Adjustment:** Use the **DUTY+** and **DUTY-** buttons to set the output duty cycle. Short presses adjust in minimum units, holding the button allows for continuous adjustment. The duty cycle range is 0.00% to 100%.
- **Output Control:** Short press the **ON** button to enable or disable the output signal.



Figure 5.2: PWM Mode Display. This image shows the LCD screen displaying parameters in PWM mode, including the output frequency (e.g., 1.200 KHz) and duty cycle (e.g., 54%). The input voltage (DC 3.3V-30V) is also indicated.

5.2.2. PULSE Mode

To switch to PULSE mode, long press the **SET** button for more than 2 seconds. In PULSE mode, the display will show pulse width and number of pulses or delay time.

- **Positive Pulse Width:** Use **FREQ+** and **FREQ-** buttons to adjust the positive pulse width.
- **Negative Pulse Width:** Use **DUTY+** and **DUTY-** buttons to adjust the negative pulse width.
- **Delay Time and Pulse Count:** Use the **SET** button to cycle through parameters like delay time and number of pulses. Adjust these values using the **FREQ+/FREQ-** and **DUTY+/DUTY-** buttons as appropriate.



Figure 5.3: Mode Comparison and Button Mapping. This image provides a detailed overview of button functions across PWM and PULSE modes, along with example LCD displays for each mode. It shows how to switch modes and adjust parameters like frequency, duty cycle, positive/negative pulse width, delay, and number of pulses.

6. MAINTENANCE

To ensure the longevity and optimal performance of your ZK-PP2K module, follow these maintenance guidelines:

- **Cleaning:** Keep the module clean and free from dust and debris. Use a soft, dry cloth for cleaning. Avoid using liquid cleaners or solvents.
- **Storage:** Store the module in a dry environment, away from extreme temperatures and humidity.
- **Handling:** Handle the module with care to prevent physical damage to the components or connections.
- **Power Supply:** Always use a stable power supply within the specified voltage range (DC 3.3V-30V) to prevent damage.

7. TROUBLESHOOTING

If you encounter issues with your ZK-PP2K module, consider the following common troubleshooting steps:

- **No Power/Display:**
 - Check the power supply connections for correct polarity and secure contact.
 - Verify that the input voltage is within the specified range (DC 3.3V-30V).
 - Ensure the power supply is functioning correctly.
- **No Output Signal:**
 - Confirm that the output is enabled by pressing the 'ON' button.
 - Check the output wiring to the load for secure connections.
 - Verify that the load (motor, lamp) is functioning correctly and not drawing excessive current.
 - Ensure the module is not in a disabled state via the CTRL pin if an external switch is used.
- **Incorrect Frequency/Duty Cycle:**

- Ensure you are in the correct operating mode (PWM or PULSE).
- Re-adjust the frequency/duty cycle using the respective buttons.
- Check for any external interference that might affect signal generation.

If problems persist, please contact DIYElectronic customer support for further assistance.

8. WARRANTY AND SUPPORT

DIYElectronic products are designed for reliability and performance. For specific warranty information, please refer to the purchase documentation or the official DIYElectronic website. For technical support, troubleshooting assistance, or inquiries regarding your ZK-PP2K module, please contact our customer service department through the vendor from whom you purchased the product or visit the official DIYElectronic support channels.

Please have your product model (ZK-PP2K) and purchase details ready when contacting support.

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