WSFG-06

Generic WSFG-06 PWM Adjustable Signal Generator Module User Manual

Model: WSFG-06

1. Product Overview

The Generic WSFG-06 is a versatile signal generator module designed for various electronic testing, research, and educational applications. It supports multiple output modes including Pulse Width Modulation (PWM), Pulse, Signal Source (Voltage/Current), and Sine Wave generation. Its clear display and intuitive controls allow for precise adjustment of output parameters.

Key Features:

- **Multifunctional Output:** Supports PWM, Pulse, Signal Source (Voltage/Current), and Sine Wave modes.
- **Adjustable Parameters:** Fine-tune voltage, frequency, duty cycle, delay times, and pulse numbers depending on the selected mode.
- **Clear Display:** An integrated screen provides real-time feedback on settings and output.
- **Robust Output:** Capable of delivering up to 30mA output current (note: designed as a source, not for directly driving high-power loads).

2. Setup and Connections

This section details how to properly connect and power your WSFG-06 module.

2.1 Power Supply Connection

The module requires a DC power supply within the range of**7V to 24V**. Connect the positive (+) terminal of your power supply to the VIN+ terminal and the negative (-) terminal to the VIN- terminal on the module's screw terminal block.

2.2 Output Connections

The WSFG-06 module provides various output terminals for different signal types:

- **PWM:** For Pulse Width Modulation and Pulse mode outputs.
- **2-10V:** For Voltage Source mode output.
- **4-20mA:** For Current Source mode output.
- **Sine Wave:** For Sine Wave mode output.
- **GND:** Common ground for all outputs.

Ensure all connections are secure before powering on the device.

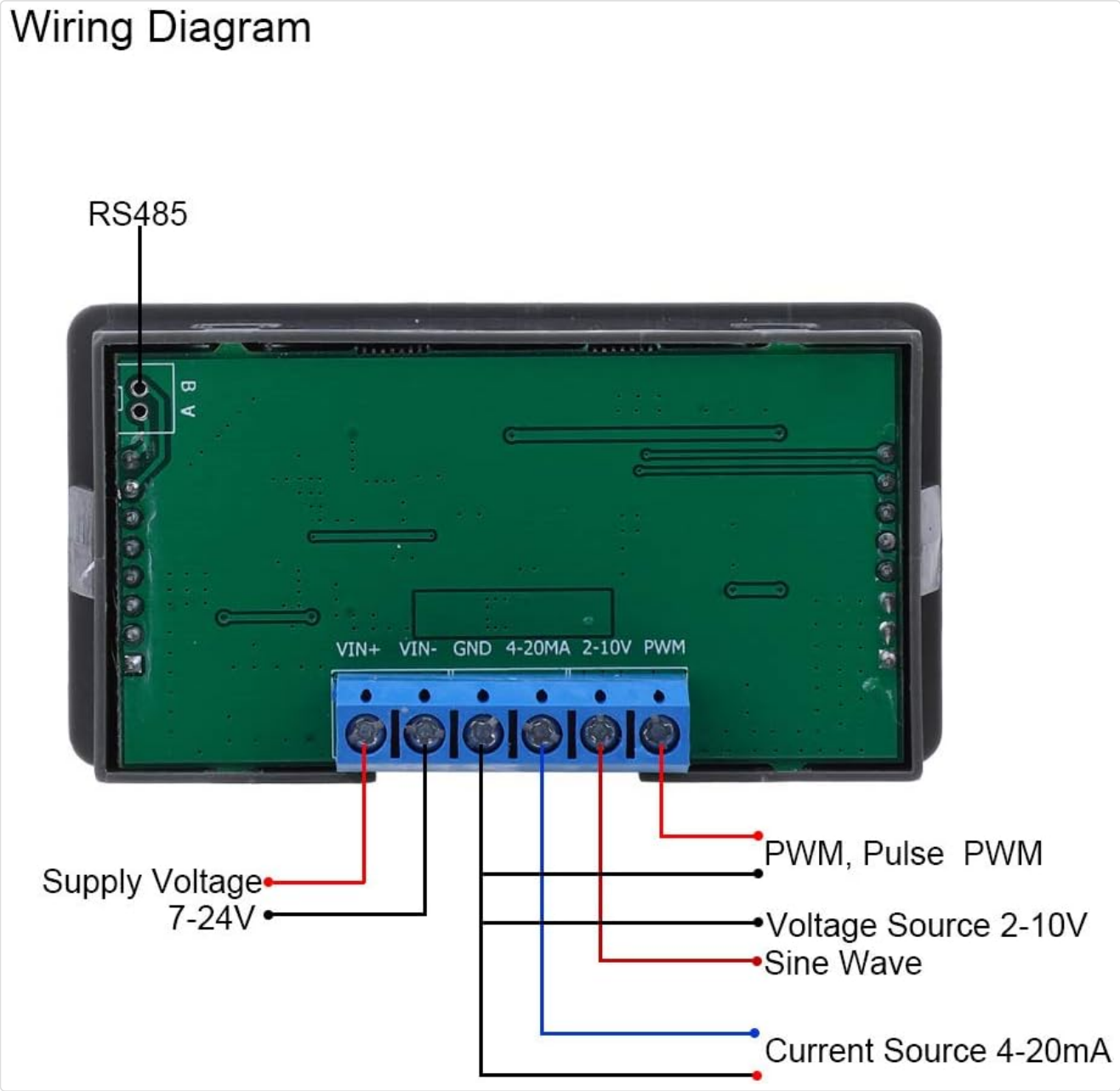

Figure 2.1: Wiring Diagram. This diagram illustrates the connections for supply voltage (VIN+ / VIN-), ground (GND), and the various signal outputs including PWM, Voltage Source (2-10V), Sine Wave, and Current Source (4-20mA).

Figure 2.2: Rear view of the WSFG-06 module, displaying the screw terminal block for power input (VIN+, VIN-, GND) and signal outputs (4-20mA, 2-10V, PWM).

3. Operating Instructions

The WSFG-06 module features a display screen, a rotary encoder with a push-button (SET), and three programmable buttons (P1, P2, P3) for operation.

Figure 3.1: Front view of the WSFG-06 module, showing the display screen, rotary encoder (SET button), and programmable buttons (P1, P2, P3).

3.1 Mode Selection

Upon powering on, the module will display the current operating mode. Use the rotary encoder to navigate through menus and adjust values. Press the 'SET' button (by pushing the rotary encoder) to confirm selections or enter editing mode for parameters.
The P1, P2, P3 buttons can be used for quick access to saved settings or specific functions, depending on how they are programmed (refer to advanced settings if available, not detailed in current product info).

3.2 PWM Mode

In PWM mode, you can adjust the output voltage, frequency, and duty cycle. This mode is suitable for controlling motor speeds, dimming LEDs, or generating specific digital signals.

- **Voltage Range:** 1V to 24V
- **Frequency Range:** 1Hz to 150KHz
- **Duty Cycle Range:** 0% to 100%
- **Accuracy:** Up to 0.1%

Use the rotary encoder to select the parameter (Voltage, Frequency, or Duty Cycle) and then rotate to adjust its value. Press 'SET' to confirm the new value.

3.3 Pulse Mode

Pulse mode allows for the generation of specific pulse trains with adjustable timing parameters and pulse count. This is useful for triggering circuits or testing digital logic.

- **Initial Delay Time (T0):** 0 to 60 seconds
- **High Level Time (T1):** 0 to 60 seconds
- **Low Level Time (T2):** 0 to 60 seconds
- **Pulse Number (PulseNum):** 1 to 60000 pulses

Navigate and adjust T0, T1, T2, and PulseNum using the rotary encoder and 'SET' button.

Figure 3.2: The module's display in Pulse Mode, showing adjustable parameters T0, T1, T2, and PulseNum, along with a graphical representation of the pulse waveform.

3.4 Signal Source Mode

This mode provides stable voltage or current outputs, acting as a reference source for calibration or testing analog circuits.

- **Voltage Source:** 2V to 10V
- **Current Source:** 4mA to 20mA

Select either Voltage Source or Current Source and adjust the desired output value using the rotary encoder.

3.5 Sine Mode

Generate a sine wave output for audio testing, filter response analysis, or other applications requiring a smooth, oscillating signal.

- **Frequency Range:** 1Hz to 1000Hz

Adjust the sine wave frequency within the specified range using the rotary encoder.

4. Specifications

Detailed technical specifications for the WSFG-06 module:

Parameter	Value
Model	WSFG-06
Supply Voltage	7-24V DC
PWM Mode - Voltage Range	1-24V
PWM Mode - Frequency Range	1-150KHz
PWM Mode - Duty Cycle Range	0-100%
PWM Mode - Accuracy	Up to 0.1%
Pulse Mode - Initial Delay (T0)	0-60S
Pulse Mode - High Level Time (T1)	0-60S
Pulse Mode - Low Level Time (T2)	0-60S
Pulse Mode - Pulse Number	1-60000
Signal Source Mode - Voltage	2-10V
Signal Source Mode - Current	4-20mA
Sine Mode - Frequency Range	1-1000Hz
Signal Load Capacity	Output current up to 30mA (Note: Not for directly driving high-power loads)
Ambient Temperature	-10°C to +70°C
Module Size	79 x 43 x 41 mm / 3.11 x 1.69 x 1.61 inches
Opening Size	76 x 39 mm / 2.99 x 1.54 inches

5. Maintenance

To ensure the longevity and reliable operation of your WSFG-06 module, follow these general maintenance guidelines:

- **Cleaning:** Gently wipe the module with a soft, dry cloth. Avoid using abrasive cleaners or solvents that could damage the casing or display.
- **Storage:** Store the module in a dry, dust-free environment when not in use. Avoid extreme temperatures and humidity.
- **Handling:** Handle the module with care to prevent physical damage. Avoid dropping or subjecting it to strong impacts.
- **Power Off:** Always disconnect the power supply before making or changing any wiring connections.

6. Troubleshooting

If you encounter issues with your WSFG-06 module, consider the following common troubleshooting steps:

- **No Power/Display:**

- Verify that the power supply is connected correctly to VIN+ and VIN-.
- Ensure the power supply voltage is within the 7-24V range.
- Check the power supply itself to ensure it is functioning.

- **No Output Signal:**
  - Confirm that the correct output terminal (PWM, 2-10V, 4-20mA, Sine Wave) is connected.
  - Check your output wiring for continuity and correct polarity.
  - Ensure the module is in the desired operating mode and parameters are set to non-zero or valid values.
  - Remember the module's output current capacity is 30mA; it cannot directly drive high-power loads.
- **Incorrect Output Values:**
  - Double-check the parameter settings on the display.
  - Ensure your measurement equipment (oscilloscope, multimeter) is calibrated and correctly configured.

If problems persist after following these steps, please contact the seller or manufacturer for further assistance.

7. Warranty and Support

For warranty information and technical support, please refer to the documentation provided at the time of purchase or contact your retailer. As this product is from a generic brand, specific warranty terms may vary. Keep your purchase receipt as proof of purchase.