

Reland Sun XY-PWM

Reland Sun XY-PWM Signal Generator Module User Manual

Model: XY-PWM

1. INTRODUCTION

The Reland Sun XY-PWM Signal Generator Module is a versatile device designed to generate square wave signals with adjustable frequency and duty cycle. It features a clear LCD display, dual operating modes (Normal and Precise), and a rotary encoder for convenient adjustments. This module is suitable for various applications including experimental development, motor control, and MCU pulse generation.



The image displays the Reland Sun XY-PWM Signal Generator Module. It features a blue LCD screen indicating frequency (e.g., 118 Hz) and duty cycle (e.g., 65%). To the right of the screen is a silver rotary encoder for adjustments, marked with '+' and '-' directions. Below the encoder is a yellow circular ON/OFF button.

2. PRODUCT FEATURES

- **Dual Operating Modes:** Includes Normal mode and Precise mode for varied control requirements.

- **LCD Display:** Clear liquid crystal display shows both frequency and duty cycle simultaneously.
- **Encoding Potentiometer:** Rotary encoder for convenient and precise adjustment of parameters.
- **Separate Adjustment:** Frequency and duty cycle can be set independently.
- **Lock Function:** Prevents accidental changes to settings during operation.
- **Wide Frequency Range:** Supports a broad spectrum of frequencies from 1 Hz to 150 kHz.
- **High Precision:** Frequency accuracy of approximately 2% across all ranges.
- **Broad Voltage Compatibility:** Operates within a DC 3.3V to 30V range.

3. SETUP

To set up your XY-PWM Signal Generator Module, follow these steps:

1. **Power Connection:** Connect a DC power source (3.3V to 30V) to the module's power input terminals. Ensure correct polarity.
2. **Output Connection:** Connect your target device (e.g., motor driver, MCU input) to the PWM output terminals of the module.
3. **Initial Power On:** Press the yellow ON/OFF button to power on the module. The LCD display should illuminate.

4. OPERATING INSTRUCTIONS

4.1 Power On/Off

- Press the yellow **ON/OFF** button once to power on the module.
- Press the yellow **ON/OFF** button again to power off the module.

4.2 Adjusting Frequency and Duty Cycle

The module uses an encoding potentiometer (rotary switch) for parameter adjustment.

- **Select Parameter:** Briefly press the rotary encoder button to switch between adjusting frequency (Hz/kHz) and duty cycle (%). The currently selected parameter will typically blink or be highlighted.
- **Adjust Value:** Rotate the encoder clockwise to increase the value and counter-clockwise to decrease the value.
- **Confirm Setting:** After adjusting, the value is automatically saved.

4.3 Mode Selection (Normal / Precise)

The module supports two operating modes:

- **Normal Mode:** Frequency range 1 Hz to 150 kHz, duty cycle 0-100% with 1% step.
- **Precise Mode:** Frequency range 1 Hz to 15 kHz, duty cycle 0-100% with 0.1% step.

To switch between modes, press and hold the rotary encoder button for approximately 2 seconds. The display will indicate the current mode.

4.4 Understanding the LCD Display

The frequency display automatically switches between four ranges:

- **XXX:** Minimum unit 1 Hz, range 1 Hz ~ 999 Hz. (e.g., 100 displayed means 100 Hz)
- **X.XX:** Minimum unit 0.01 kHz, range 1.00 kHz ~ 9.99 kHz. (e.g., 1.01 displayed means 1.01 kHz)
- **XX.X:** Minimum unit 0.1 kHz, range 10.0 kHz ~ 99.9 kHz. (e.g., 54.1 displayed means 54.1 kHz)
- **X.X.X:** Minimum unit 1 kHz, range 1 kHz ~ 150 kHz. (e.g., 1.2.4 displayed means 124 kHz)

4.5 Lock Function

The module includes a lock function to prevent unintended changes to settings. To activate or deactivate the lock, refer to the specific instructions provided with your module, as this function is typically engaged by a specific button combination or prolonged press.

5. SPECIFICATIONS

Parameter	Value
Operating Voltage	DC 3.3V - 30V
Frequency Range (Normal Mode)	1 Hz - 150 kHz
Frequency Range (Precise Mode)	1 Hz - 15 kHz
Frequency Accuracy	Approximately 2%
Duty Cycle Range	0 - 100%
Duty Cycle Step (Normal Mode)	1%
Duty Cycle Step (Precise Mode)	0.1%
Signal Load Capacity	Output current 5 - 30 mA
Output Amplitude	Equal to input voltage value
Manufacturer	Reland Sun
Country of Origin	China

6. APPLICATIONS

The Reland Sun XY-PWM Signal Generator Module can be used in various applications, including:

- Generating square wave signals for experimental development and testing.
- Controlling motor drivers with adjustable speed and direction.
- Providing adjustable pulses for Microcontroller Unit (MCU) applications.
- Serving as a pulse generator for various control circuits, such as PWM drives and speed regulation systems.

7. MAINTENANCE

To ensure the longevity and optimal performance of your module:

- Keep the module clean and free from dust and moisture.
- Avoid exposing the module to extreme temperatures or direct sunlight.
- Do not apply voltage outside the specified operating range (DC 3.3V-30V).
- Handle with care to prevent physical damage to the components or display.

8. TROUBLESHOOTING

If you encounter issues with your module, consider the following:

- **No Display/No Power:** Verify that the power supply is connected correctly and within the specified voltage range (3.3V-30V DC). Ensure the ON/OFF button has been pressed.
- **Incorrect Output:** Check your frequency and duty cycle settings. Ensure the module is in the correct operating mode (Normal or Precise) for your application. Verify connections to the target device.
- **Unresponsive Controls:** If the rotary encoder or buttons are not responding, check if the lock function is active. Try powering the module off and on again.

9. WARRANTY AND SUPPORT

Information regarding spare parts availability and guaranteed software updates for this product is currently unavailable. For further support or inquiries, please refer to the vendor or manufacturer's contact information provided at the point of purchase.

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