

SIM800L GPRS GSM Module User Manual

Model: SIM800L GPRS GSM Module

Brand: Bolantedz

1. Introduction

The SIM800L GPRS GSM Module is a compact and versatile core board designed for integrating cellular communication capabilities into various electronic projects, including those based on Arduino. It supports quad-band GSM/GPRS networks, allowing for global connectivity. The module features a TTL serial port for easy interfacing with microcontrollers and includes automatic boot and network registration functionalities.

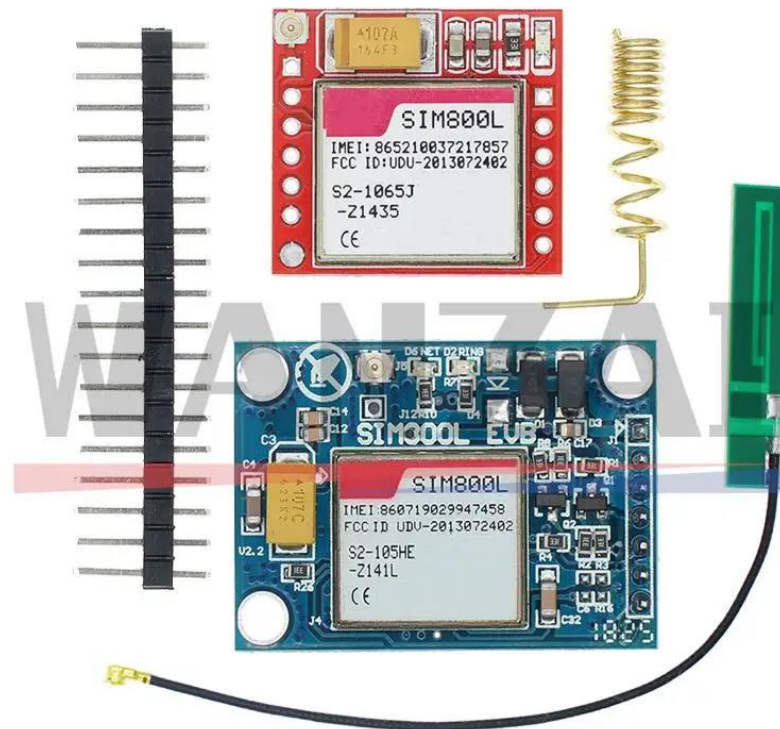


Figure 1: SIM800L GPRS GSM Module (Red and Blue versions shown with different antenna types)

2. Specifications

Feature	Description
Chipset	SIM800L
Operating Voltage	3.7V - 4.2V
Network Support	Quad-band GSM/GPRS (850/900/1800/1900 MHz)
Module Dimensions	2.5 cm x 2.3 cm
Interface	TTL Serial Port
SIM Card Type	Micro SIM Card
Package Type	SMD
Automatic Features	Automatic boot, network homing
Signal Indicator	Onboard LED (slow flash for signal, fast flash for no signal)

3. Setup Guide

Follow these steps to set up your SIM800L GPRS GSM Module:

1. Insert Micro SIM Card:

Carefully insert a Micro SIM card into the designated slot on the module. Ensure the card is inserted in the correct orientation as indicated on the module. The module supports China Mobile, China Unicom, and global quad-band networks.

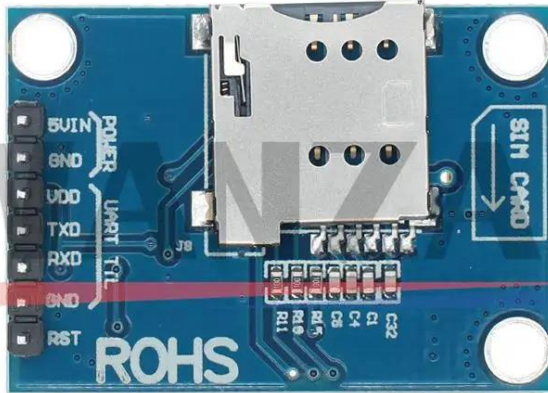


Figure 2: Blue Module SIM Slot

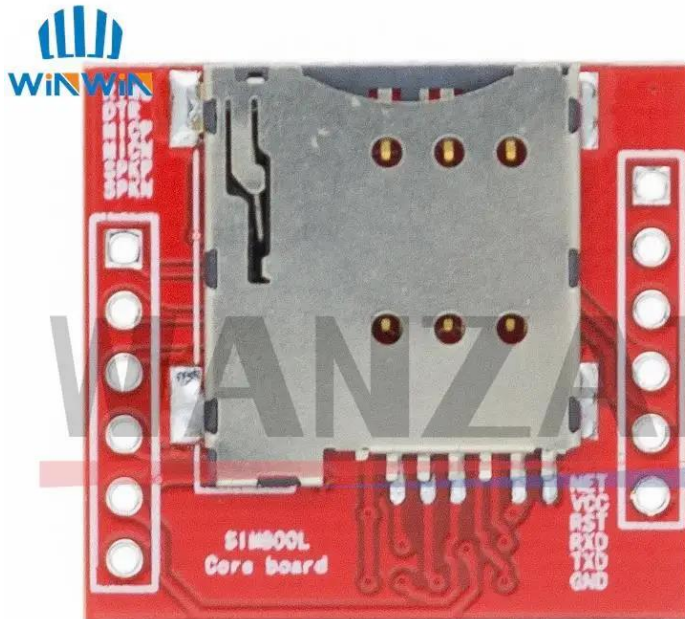


Figure 3: Red Module SIM Slot

2. Connect Antenna:

Attach the appropriate antenna (spring, PCB, or external) to the module's antenna connector. Ensure a secure connection for optimal signal reception.



Figure 4: Module with Spring Antenna

3. Power Supply Connection:

Connect a stable power supply within the 3.7V to 4.2V range to the module's power pins (typically VCC/5VIN and GND). Ensure correct polarity. The module will automatically boot upon power-up.

Pinout (Refer to Figures 2 & 3 for visual aid):

- **VCC / 5VIN:** Power input (3.7V - 4.2V)
- **GND:** Ground
- **TXD:** Transmit Data (connect to microcontroller RX)
- **RXD:** Receive Data (connect to microcontroller TX)

- **RST:** Reset pin
- **VDD:** (Blue module only) Logic level voltage reference, typically connected to microcontroller's VCC for level shifting.
- **NET:** (Red module only) Network status indicator pin.

4. Serial Communication:

Connect the module's TXD and RXD pins to your microcontroller's RX and TX pins, respectively. The module uses a TTL serial port, eliminating the need for an external MAX232 converter.

4. Operating Instructions

Once powered, the SIM800L module will automatically boot and attempt to register with the cellular network. You can monitor its status using the onboard signal indicator LED:

- **Slow Flash:** Indicates the module has successfully registered with the network and has a signal.
- **Fast Flash:** Indicates the module is searching for a network or has no signal.

Communication with the module is typically done via AT commands sent through the TTL serial interface. Refer to the SIM800L AT Command Set documentation for detailed instructions on sending SMS, making calls, establishing GPRS connections, and other functionalities.

5. Maintenance

To ensure the longevity and optimal performance of your SIM800L module, follow these maintenance guidelines:

- **Environmental Conditions:** Keep the module in a dry environment, away from moisture, extreme temperatures, and direct sunlight.
- **Handling:** Handle the module with care to avoid physical damage to components or connectors. Avoid touching the PCB with bare hands to prevent electrostatic discharge.
- **Cleaning:** If necessary, gently clean the module with a soft, dry brush or a lint-free cloth. Do not use liquid cleaners or solvents.
- **Power Supply:** Always use a stable and regulated power supply within the specified voltage range (3.7V-4.2V). Fluctuations or over-voltage can damage the module.

6. Troubleshooting

If you encounter issues with your SIM800L module, consider the following troubleshooting steps:

- **Module Not Powering On / No Indicator Light:**
 - Verify that the power supply is connected correctly and provides the specified voltage (3.7V-4.2V).
 - Check for any loose connections or damaged wires.
- **Signal Light Flashing Fast (No Network Registration):**
 - Ensure the Micro SIM card is correctly inserted and activated with a valid plan.
 - Check that the antenna is securely connected.
 - Move the module to an area with better cellular network coverage.
 - Confirm the SIM card is compatible with the module's quad-band frequencies.
- **No Serial Communication:**
 - Double-check the TXD and RXD connections between the module and your microcontroller. Ensure TXD connects to RX and RXD connects to TX.
 - Verify that the baud rate configured in your microcontroller matches the module's default baud rate (often 9600 or 115200, check SIM800L documentation).
 - Ensure the ground connections are common between the module and microcontroller.
- **Module Resets Unexpectedly:**
 - This can often be due to insufficient power supply, especially during transmission bursts. Ensure your power supply can provide enough current (e.g., 2A or more).
 - Check for any short circuits or incorrect wiring.

7. User Tips

Based on general usage patterns for similar modules:

- **Power Supply Stability:** The SIM800L module can draw significant current spikes (up to 2A) during GPRS transmission. It is highly recommended to use a dedicated, stable power supply with sufficient current capability, and consider adding a large capacitor (e.g., 1000uF) across the power lines near the module to handle these current demands.
- **Logic Level Shifting:** While the module uses TTL serial, some microcontrollers operate at 5V logic. Ensure that if your microcontroller is 5V, you use appropriate logic level shifters

for the TXD/RXD lines to prevent damage to the SIM800L module, which typically operates at 3.3V logic levels. The VDD pin on some versions (like the blue module) can be used to reference the microcontroller's logic voltage.

- **Antenna Placement:** For best performance, ensure the antenna is placed away from other electronic components and metal objects that could interfere with the signal.
- **AT Command Reference:** Keep the official SIM800L AT Command Set documentation handy. It is crucial for understanding and implementing various communication functions.

8. Warranty and Support

Specific warranty details for this product are not provided in the available information. For any warranty claims, technical support, or further assistance, please contact the seller directly through the platform where the product was purchased. Ensure you retain your purchase records for any support inquiries.