# SIM800A Quad Band GSM/GPRS Serial Modem

# SIM800A GSM Modem

This GSM modem has a **SIM800A chip and RS232** interface while enables easy connection with the computer or laptop using the USB to Serial connector or to the microcontroller using the RS232 to TTL converter. Once you connect the SIM800 modem using the USB to RS232 connector, you need to find the correct COM port from the Device Manger of the USB to Serial Adapter. Then you can open Putty or any other terminal software and open an connection to that COM port at 9600 baud rate, which is the default baud rate of this modem.Once a serial connection is open through the computer or your microcontroller you can start sending the AT commands. When you send AT commands for example: "AT\r" you should receive back a reply from the SIM800 modem saying "OK" or other response depending on the command send.

SIM800 is a complete **Quad-band GSM/GPRS** solution in a LGA type which can be embedded in the customer applications. SIM800H support Quad-band 850/900/1800/1900MHz, it can transmit Voice, SMS and data information with low power consumption. With tiny size of 15.8\*17.8\*2.4 mm, it can fit into slim and compact demands of customer design. Featuring and Embedded AT, it allows total cost savings and fast time-to-market for customer applications.

**Features of SIM800A**

* Bands: GSM 850MHz, EGSM 900MHz, DCS 1800MHz, PCS 1900MHz
* GPRS class 2/10
* Control via AT commands (3GPP TS 27.007, 27.005 and SIMCOM enhanced AT commandset)
* Supply voltage 3.4-4.4V
* Coding schemes: CS-1, CS-2, CS-3, CS-4 Tx power: Class 4 (2W), Class 1 (1W)
* Small package: 23 \* 23 \* 3mm
* Low power: down to 1mA in sleep mode
* TCP/IP AT firmware
* Operating temperature: -40C to +85C
* Audio channels which include a microphone input and a receiver output.
* One SIM card interface.

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**Modem Features:**

* High Quality Product (Not hobby grade)
* Quad-Band GSM/GPRS  850/ 900/ 1800/ 1900 MHz
* RS232 interface @ RMC Connector for direct communication with computer or MCU kit
* Configurable baud rate
* SMA connector with GSM Antenna.
* SIM Card holder.
* Built in Network Status LED
* Inbuilt Powerful TCP/IP protocol stack for internet data transfer over GPRS.
* Audio interface Connector
* Normal operation temperature: -20 °C to +55 °C
* Input Voltage: 5V-12V DC

Interfacing with controller:

**GSM module** is used in many communication devices which are based on GSM (Global System for Mobile Communications) technology. It is used to interact with GSM network using a computer. GSM module only understands **AT commands**, and can respond accordingly. The most basic command is “AT”, if GSM respond OK then it is working good otherwise it respond with “ERROR”. There are various AT commands like ATA for answer a call, ATD to dial a call, AT+CMGR to read the message, AT+CMGS to send the sms etc. AT commands should be followed by Carriage return i.e. \r (0D in hex), like “AT+CMGS\r”. We can use GSM module using these commands.

AT commands are instructions used to control a modem. AT is the abbreviation of ATtention. Every command line starts with "AT" or "at". That's why modem commands are called AT commands. Many of the commands that are used to control wired dial-up modems, such as ATD (Dial), ATA (Answer), ATH (Hook control) and ATO (Return to online data state), are also supported by GSM/GPRS modems and mobile phones. Besides this common AT command set, GSM/GPRS modems and mobile phones support an AT command set that is specific to the GSM technology, which includes SMS-related commands like AT+CMGS (Send SMS message), AT+CMSS (Send SMS message from storage), AT+CMGL (List SMS messages) and AT+CMGR (Read SMS messages).

Note that the starting "AT" is the prefix that informs the modem about the start of a command line. It is not part of the AT command name. For example, D is the actual AT command name in ATD and +CMGS is the actual AT command name in AT+CMGS. However, some books and web sites use them interchangeably as the name of an AT command.

Here are some of the tasks that can be done using AT commands with a GSM/GPRS modem or mobile phone:

* Get basic information about the mobile phone or GSM/GPRS modem. For example, name of manufacturer (AT+CGMI), model number (AT+CGMM), IMEI number (International Mobile Equipment Identity) (AT+CGSN) and software version (AT+CGMR).
* Get basic information about the subscriber. For example, MSISDN (AT+CNUM) and IMSI number (International Mobile Subscriber Identity) (AT+CIMI).
* Get the current status of the mobile phone or GSM/GPRS modem. For example, mobile phone activity status (AT+CPAS), mobile network registration status (AT+CREG), radio signal strength (AT+CSQ), battery charge level and battery charging status (AT+CBC).
* Establish a data connection or voice connection to a remote modem (ATD, ATA, etc).
* Send and receive fax (ATD, ATA, AT+F\*).
* Send (AT+CMGS, AT+CMSS), read (AT+CMGR, AT+CMGL), write (AT+CMGW) or delete (AT+CMGD) SMS messages and obtain notifications of newly received SMS messages (AT+CNMI).
* Read (AT+CPBR), write (AT+CPBW) or search (AT+CPBF) phonebook entries.