

[Arduino Projects](#)

GSM Sim900A with Arduino Complete Guide with GSM based Projects Examples

👤 Engr Fahad 📧 • February 28, 2020 🔥 11,643

Table of Contents



準備好在網路上宣傳您 了嗎？我們可以幫您一

4. GSM SIM900A Pin Description:
5. GSM SIM900A Applications
6. How to use the SIM900A:
7. GSM Sim900A Module:
8. GSM Sim900A specifications:
 - 8.1. GSM Sim900A Power Supply:
 - 8.2. GSM Sim900A pin configuration:
9. GSM Sim900A AT commands:
 - 9.1. TO CHECK THE MODEM:
 - 9.2. TO CHANGE SMS SENDING MODE:
 - 9.3. TO SEND NEW SMS:
 - 9.4. PREFERRED SMS MESSAGE STORAGE:
 - 9.5. TO MAKE A VOICE CALL:
 - 9.6. TO REDIAL LAST NO:
 - 9.7. TO RECEIVE INCOMING CALL:
 - 9.8. TO HANGUP OR DISCONNECT A CALL:
 - 9.9. OPERATOR SELECTION:
 - 9.10. TO SET A PARTICULAR BAUDRATE:
 - 9.11. READ OPERATOR NAMES.
 - 9.12. AT+CRC SET CELLULAR RESULT CODES
FOR INCOMING CALL INDICATION:
 - 9.13. GPRS COMMANDS:
10. GSM Sim900A with Arduino:
 - 10.1. Following are the detailed GSM Sim900A-based projects.

GSM Sim900A Description:

準備好在網路上宣傳您
了嗎？我們可以幫您一



GSM Sim900A— the **GSM SIM900A** by the SIMCom is designed for global market, **SIM900A** is a dual-band GSM/GPRS engine that works on frequencies EGSM 900MHz and DCS 1800MHz. SIM900A features GPRS multi-slot class 10/ class 8 (optional) and supports the GPRS coding schemes CS-1, CS-2, CS-3 and CS-4.

With a tiny configuration of 24mm x 24mm x 3mm, SIM900A can meet almost all the space requirements in your applications, such as M2M, smartphone, PDA, and other mobile devices.



準備好在網路上宣傳您 了嗎？我們可以幫您一

that the current consumption is as low as 1.5mA in SLEEP mode.

The **SIM900A** is integrated with the TCP/IP protocol; extended TCP/IP AT commands are developed for customers to use the TCP/IP protocol easily, which is very useful for those data transfer applications.

Amazon Links:

[12v Adaptor:](#)

[Arduino Uno](#)

[Arduino Nano](#)

[Sim900A GSM Module:](#)

[DC 5V 2A Adaptor](#)

Other Tools and Components:

[Super Starter kit for Beginners](#)

[Digital Oscilloscopes](#)

[Variable Supply](#)

[Digital Multimeter](#)

[Soldering iron kits](#)



準備好在網路上宣傳您
了嗎？我們可以幫您一

One-Stop
Manufac

Advanced P
1999, with tv
one assemk

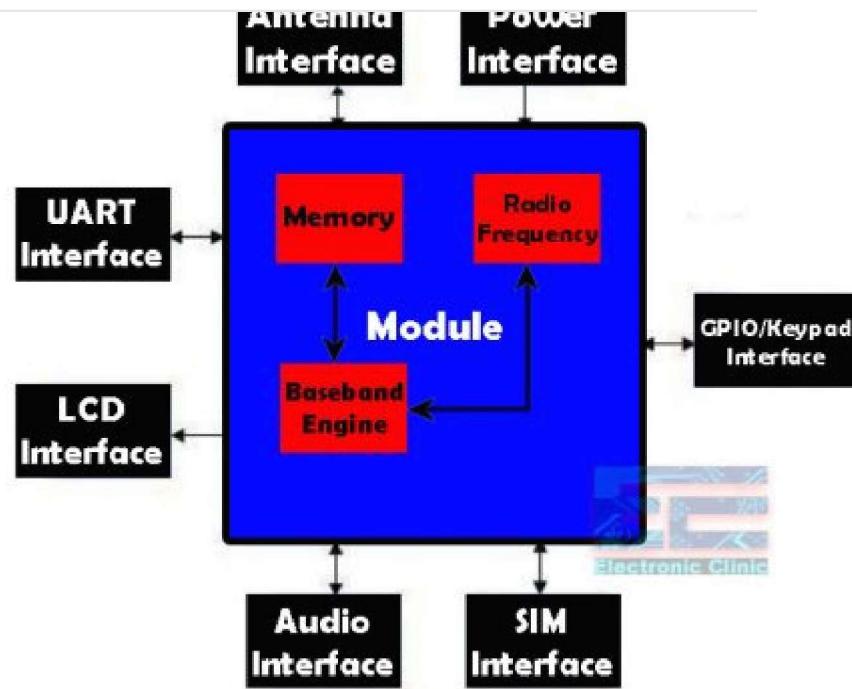
PCBONLINE

SIM900A key features:

Feature	Implementation
Power supply	Single supply voltage 3.4V – 4.5V
Power saving	Typical power consumption in SLEEP mode is 1.5mA (BS-PA-MFRMS=5)
Frequency Bands	<ul style="list-style-type: none"> SIM900A Dual-band: EGSM900, DCS1800. The SIM900A can search the 2 frequency bands automatically. The frequency bands also can be set by AT command. Compliant to GSM Phase 2/2+
GSM class	Small MS
Transmitting power	<ul style="list-style-type: none"> Class 4 (2W) at EGSM 900 Class 1 (1W) at DCS 1800
GPRS connectivity	<ul style="list-style-type: none"> GPRS multi-slot class 10 (default) GPRS multi-slot class 8 (option) GPRS mobile station class B

**GSM SIM900A Functional
Diagram:**

準備好在網路上宣傳您
了嗎？我們可以幫您一

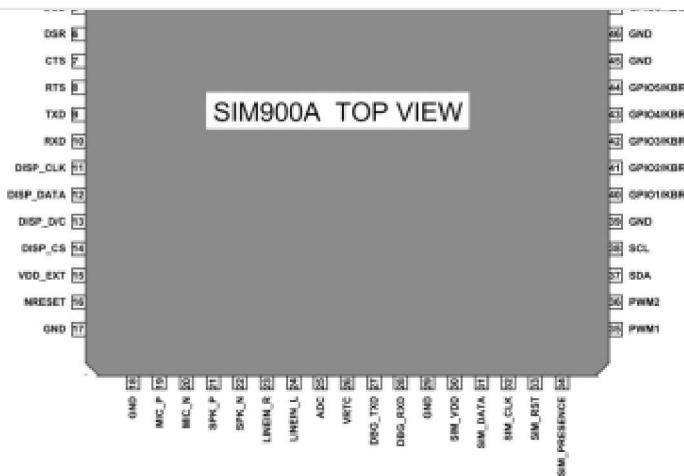


The above figure shows a functional diagram of the SIM900A and illustrates the mainly functional parts:

- The **GSM baseband engine**
- Flash and SRAM
- The **GSM radio frequency part**
- The **antenna interface**
- The **Other interfaces**

GSM SIM900A Pin Description:

準備好在網路上宣傳您 了嗎？我們可以幫您一



GSM SIM900A by the SIMCom is a 68 terminal device as shown in the **pin diagram given above**. I will describe the function of each pin.

Pin Number	Pin Name	Description
1	PWRKEY	Voltage input for PWRKEY. PWRKEY should be pulled low to power on or power off the system.
2	PWRKEY_OUT	The user should keep pressing the key for a short time when power on or power off the system because the system need margin time in order to assert the software.
2	PWRKEY_OUT	Connecting PWRKEY and PWRKEY_OUT for a short time then release also can

準備好在網路上宣傳您 了嗎？我們可以幫您一

4	RI	Ring indicator [Serial port]
5	DCD	Data carry detect [Serial port]
6	DSR	Data Set Ready [Serial port]
7	CTS	Clear to send [Serial port]
8	RTS	Request to send [Serial port]
9	TXD	Transmit data [Serial port]
10	RXD	Receive data [Serial port]
11	DISP _CLK	Clock for display [Display interface]
12	DISP_DATA	Display data output [Display interface]
13	DISP _D/C	Display data or command select [Display interface]
14	DISP_CS	Display Enable [Display interface]
15	VDD_EXT	2.8V output power supply
16	NRESET	External reset input
17,18,29,39,45,		
46,53,54,58,59,	GND	Ground
61,62,63,64,65		
19	MIC_P	Microphone Positive
20	MIC_N	Microphone Negative



準備好在網路上宣傳您 了嗎？我們可以幫您一

23	LINEIN_R	directly mix or multiplex externally generated analog signals such as polyphonic tones from an external melody IC or music generated by an FM tuner IC or module.]
24	LINEIN_L	Left Channel Input
25	ADC	General purpose analog to digital converter.
		Current input for RTC when the battery is not supplied for the system.
26	VRTC	Current output for backup battery when the main battery is present and the backup battery is in low voltage state.
27	DBG_TXD	Transmit pin [Serial interface for debugging and firmware upgrade]
28	DBG_RXD	Receive pin [Serial interface for debugging and firmware upgrade]
30	SIM_VDD	Voltage supply for SIM card
31	SIM_DATA	SIM data output



準備好在網路上宣傳您 了嗎？我們可以幫您一

35	PWM1	PWM Output
36	PWM2	PWM Output
37	SDA	Serial Data [I2C]
38	SCL	Serial Clock [I2C]
40,41,42,43,44 & 47,48,49,50,51	KBRO to KBR4 & KBC4 to KBCo	Keypad interface [ROWS & COLUMNS]
52	NETLIGHT	Indicate net status
55,56,57	VBAT	Three VBAT pins are dedicated to connect the supply voltage. The power supply of SIM900A has to be a single voltage source of VBAT= 3.4V to 4.5V. It must be able to provide sufficient current in a transmit burst which typically rises to 2A.
60	RF_ANT	Antenna connection
66	STATUS	Indicate working status
67	GPIO 11	General Purpose Input/output
68	GPIO 12	General Purpose Input/output



準備好在網路上宣傳您
了嗎？我們可以幫您一



GSM SIM900A Applications

- Cellular Communication
- Home Automations
- Security based projects
- Sensors monitoring
- Robotics
- Mobile Phone Accessories
- Servers
- Computer Peripherals
- Automobile
- USB Dongles

How to use the SIM900A:



準備好在網路上宣傳您
了嗎？我們可以幫您一



It's seems quite impossible for a beginner to do all the soldering, I will never do this, in fact I don't have to do this, because readymade modules are already available in the market.

GSM Sim900A Module:



This is the **GSM Sim900A mini** Module. The first thing that you will notice about this GSM module is that, it has no onboard voltage regulator, so be very careful while applying

準備好在網路上宣傳您 了嗎？我們可以幫您一

adjustable variable voltage regulator, I have a very detailed tutorial on lm317t explaining everything.

There are a few things that I really like about the GSM sim900A module which are

1. This is the cheapest GSM module available on the Market.
2. Another cool thing is, it can be easily interfaced with 5V supported controller boards like Arduino Uno, Arduino mega, Arduino Nano etc and also with 3.3v controller boards like Nodemcu ESP8266 Wifi Module and ESP32 etc. The GSM Sim900A module interfacing with Nodemcu ESP8266 and ESP32 will be explained in one of my future articles.

**Find Electronic
Components - In-
Stock Electronic
Components**

Ad brokerforum.com

無需下載 · 免費遊玩

Ad G123

**Genge & Thoma A
potentiometer -
Felicity Control
Limited**

Ad felicitycontrol.com

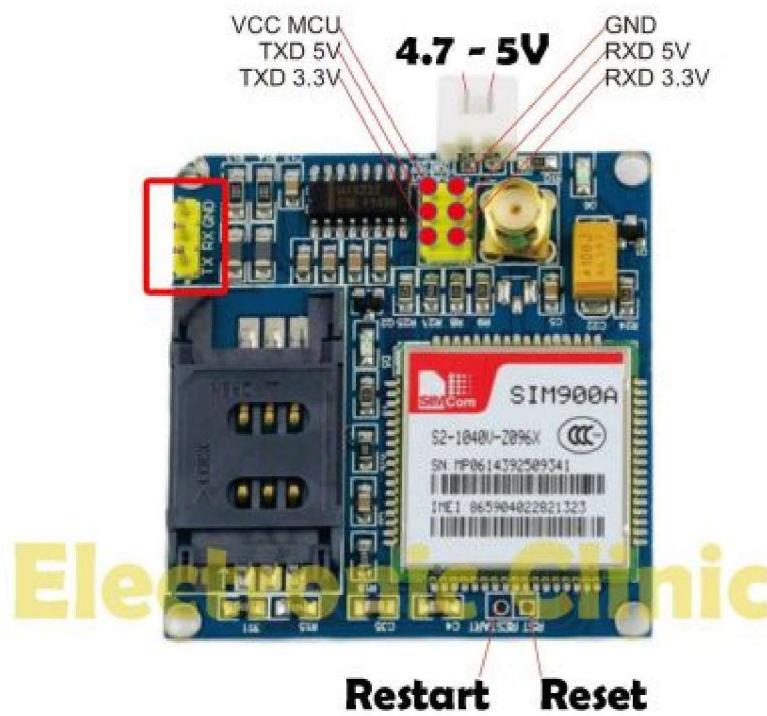


準備好在網路上宣傳您 了嗎？我們可以幫您一

voltage regulator. Although it has a power supply pin which can be connected with the Arduino's 5 volts. When no sensors are connected with the Arduino then you can Run this GSM module without any problem. But the time you start connecting different sensors with the Arduino, then Arduino cannot provide enough current to the Sim900A Module due to which the Arduino starts resetting.

So, my recommendation is use an external regulated 5v power supply.

GSM Sim900A pin configuration:



The white connector labeled with 4.7 – 5V, This is where we connect the external 5volt regulated power supply. It has a total of 9 male headers. The three male headers on the right side are not connected.

準備好在網路上宣傳您 了嗎？我們可以幫您一

Arduino's ground.

- Pin number 3 is the 5v TXD,
- Pin number 4 is the 5v RXD,
- Pin number 5 is the 3.3v TXD, and
- Pin number 6 is the 3.3v RXD.

GSM Sim900A AT commands:

TO CHECK THE MODEM:

AT

OK

TO CHANGE SMS SENDING MODE:

AT+CMGF=1

OK

TO SEND NEW SMS:

AT+CMGS="MOBILE NO."

<MESSAGE

{CTRL+Z}

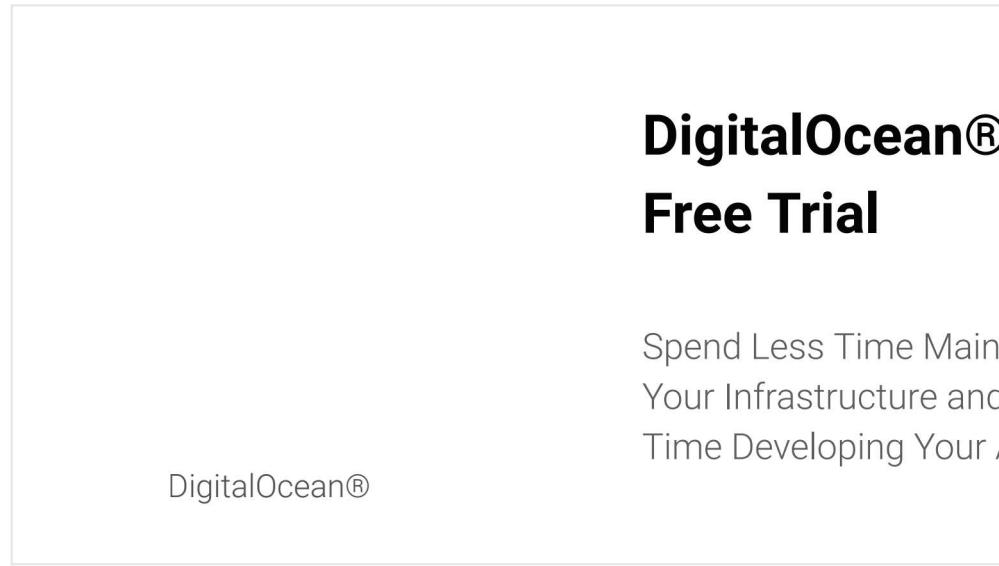
PREFERRED SMS MESSAGE STORAGE:

AT+CPMS=?



準備好在網路上宣傳您
了嗎？我們可以幫您一

+CPMS: "SM",19,30,"SM",19,30,"SM",19,30



TO MAKE A VOICE CALL:

ATD923339348223;

TO REDIAL LAST NO:

ATDL

TO RECEIVE INCOMING CALL:

ATA

TO HANGUP OR DISCONNECT A CALL:

ATH

OPERATOR SELECTION:

準備好在網路上宣傳您
了嗎？我們可以幫您一

+COPS: o,o,"AirTel"

OK

TO SET A PARTICULAR BAUDRATE:

AT+IPR=? {To view the baud rate values}

AT+IPR=0 {To set the modem to autobauding mode}

READ OPERATOR NAMES.

AT+COPN=?

OK

AT+COPN

+COPN: "472001","DHIMOBILE"

+COPN: "60500

+COPN: "502012","maxis mobile"

+COPN:

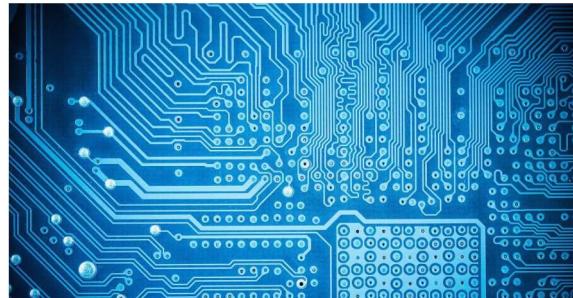
+COPN: "502013","TMTOUCH"

+COPN

+COPN: "502016","DiGi"



準備好在網路上宣傳您 了嗎？我們可以幫您一



Rotary potentiometer

Potentiometer made with conductiv
DP70 /DP120

Ad felicitycontrol.com

AT+CRC SET CELLULAR RESULT CODES FOR INCOMING CALL INDICATION:

AT+CRC=?

+CRC: (0-1)

OK

AT+CRC?

+CRC: 0

OK

AT+CRC=1

OK

+CRING: VOICE

GPRS COMMANDS:

Command Description



準備好在網路上宣傳您 了嗎？我們可以幫您一

AT+CGQMIN	QUALITY OF SERVICE PROFILE (MINIMUM ACCEPTABLE)
AT+CGQREQ	QUALITY OF SERVICE PROFILE (REQUESTED)
AT+CGACT	PDP CONTEXT ACTIVATE OR DEACTIVATE
AT+CGDATA	ENTER DATA STATE
AT+CGPADDR	SHOW PDP ADDRESS
AT+CGCLASS	GPRS MOBILE STATION CLASS
AT+CGEREP	CONTROL UNSOLICITED GPRS EVENT REPORTING
AT+CGREG	NETWORK REGISTRATION STATUS
AT+CGSMS	SELECT SERVICE FOR MO SMS MESSAGES
AT+CGCOUNT	GPRS PACKET COUNTERS



準備好在網路上宣傳您 了嗎？我們可以幫您一

FIND ELECTRONIC
Components - In-
Stock Electronic
Components

Ad brokerforum.com

樂而仁戰，尤貴知心

Ad G123

GSM Sim900A with Arduino:

Following are some of the projects which explain GSM Sim900A interfacing with Arduino and GSM Sim900A Arduino Code.

Following are the detailed GSM Sim900A-based projects.

[Arduino Fire Alarm System with GSM Alert Text Message & Buzzer](#)

[Flood Monitoring System with SMS Alert using Arduino and GSM](#)

[Door Lock System using Arduino and GSM, Wireless Electronic Lock](#)



準備好在網路上宣傳您 了嗎？我們可以幫您一

**Find Electronic
Components - In-
Stock Electronic
Components**

Ad brokerforum.com

無需下載 · 免費遊玩

Ad G123

**Rogers PCB
Manufacturing - F
RF PCB Design
Checking**

Ad raypcb.com

[How to use GSM and Bluetooth Together To monitor Any Sensors wirelessly using Arduino](#)

[RFID & GSM based student Attendance Alert message to parents](#)

[Arduino GSM Project: Security Alert message to multiple numbers](#)

[Request Temperature Data Using GSM and Arduino](#)

[Arduino and Gsm based laser security system](#)



準備好在網路上宣傳您
了嗎？我們可以幫您一

GSM Alarm System Using Arduino and a PIR Sensor

Tags

arduino gsm

arduino gsm projects

arduino sim900a

arduino sim900a project

electronic clinic

gsm sim900A

gsm sim900a based projects

gsm sim900a simcom

sim900a arduino

sim900a functional diagram

sim900a pinout

simcom gsm sim900a

