

#### FCC WARNING

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) this device may not cause harmful interference,  
and (2) this device must accept any interference received,  
including interference that may cause undesired operation.

Any changes or modifications not expressly approved by the party responsible for compliance  
could void the user's authority to operate the equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device,  
pursuant to Part 15 of the FCC Rules.

These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses and can radiate radio frequency energy and,  
if not installed and used in accordance with the instructions,  
may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception,  
which can be determined by turning the equipment off and on,  
the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different  
from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

To maintain compliance with FCC's RF Exposure guidelines,

This equipment should be installed and operated with minimum distance between 20cm the radiator your body:

Use only the supplied antenna.

FCC ID:2ATPO-A9G

## A9G GPRS/GSM +GPS/BDS Module

I The A9G development board is a multifunctional development board based on the A9G GPRS / GSM + GPS / BDS module.

It can be used to verify the basic communication functions and peripheral functions of the A9G module.

I A9G development board has basic phone / SMS, GPRS network communication, GPS / BDS dual-mode positioning function.

I A9G development board has lithium battery charging management, microphone, speaker interface, USB communication interface, multiple user buttons / led, TF card slot, acceleration sensor, SPI interface, I2C2 interface, ADC interface

I A9G development board camera expansion board, which can connect 30W / 200W camera.

I A9G development board slot machine expansion board, which can be connected to traditional slot machines.

Based on the above functions, A9G can be used for a variety of peripheral prototype development and verification:

I Vehicle anti-theft device using GPRS + GPS and acceleration sensor.

I Remote monitoring intercom using GSM and microphone / speaker

I Smart watch using GPRS / GSM + GPS, 1.54-inch capacitive touch screen

I Elderly monitoring watch using GPRS / GSM + GPS, heart rate blood oxygen sensor, 1.54 inch capacitive touch screen

I Remote monitoring camera using GPRS + TF + camera expansion board

I Wechat payment slot machine solution using slot machine expansion board

## Features

- Complete quad-band GSM / GPRS module, 800/900 / 1800 / 1900MHz
- SMD package for easy MP & testing
- Low power mode, average current 2mA or less
- supportGPS,BDS.
- Supports digital audio and analog audio, supports HR, FR, EFR, AMR voice coding
- Support voice calls and SMS messages
- Embedded network service protocol stack
- Support standard GSM07.07,07.05AT command and Anxin expandable command set
- Support PBCCH
- Supports firmware upgrade via serial port

## Overview

The A9G is a complete quad-band GSM / GPRS module that combines GPRS and GPS / BDS technologies and integrates it in a compact SMD package, saving customers time and money in developing GNSS applications.

The A9G can be used in a wide range of IoT applications and is ideal for IoT applications for home automation, industrial wireless control, wearable electronics, wireless location sensing devices, wireless location system signals and other IoT applications.

A9G SMD package, through the standard SMT equipment to achieve rapid production of products, especially for automation, large-scale, low-cost modern production methods for the convenience of a variety of Internet of Things hardware terminal applications.

## Product specifications

|                                |                                                                                                            |
|--------------------------------|------------------------------------------------------------------------------------------------------------|
| Model Name                     | A9G                                                                                                        |
| Package                        | SMD54                                                                                                      |
| Size                           | 19.2*18.8*2.7(±0.2)mm                                                                                      |
| Frequency                      | 850/900/1800/1900MHz                                                                                       |
| GPRS Multi-slot                | Class 12                                                                                                   |
| GPRS Mobile Station            | Class B                                                                                                    |
| Compatible with GSM Phase 2/2+ | Class 4 (2W@850/ 900MHz)<br>Class 1 (1W@1800/1900MHz)                                                      |
| Power supply                   | 3.8~4.2V typical value 4.0V                                                                                |
| Current                        | 1.14mA@DRX=5<br>1.03mA@DRX=9                                                                               |
| AT command                     | 3GPP TS 27.007, 27.005                                                                                     |
| GPRS Class 12                  | Max 85.6kbps (up & down)                                                                                   |
| Coding scheme                  | CS 1,2, 3, 4                                                                                               |
| PBCCCH                         | Support                                                                                                    |
| Text                           | Point to point sms send and receive<br>Cellular broadcast message, Text / PDU mode                         |
| Voice coding mode              | Half Rate (HR)、 Full Rate (FR)、<br>Enhanced Full Rate (EFR)、<br>Adaptive Multi-Rate (AMR)                  |
| Audio processing mechanism     | Echo Cancellation, Echo suppression, Noise suppression                                                     |
| SIM Card                       | 1.8V/3V                                                                                                    |
| UART                           | 3 pcs ( including firmware upgrade serial port ), baud rate support<br>2400~1843200bps , default 115200bps |
| Antenna                        | Pad (include GSM、 GPS)                                                                                     |
| Communication Interface        | I2C、 USB、 UART、 SDMMC、 GPIO、 ADC                                                                           |
| GPS Sensitivity                | Cold start: -148 dBm<br>Hot start: -162 dBm<br>Recapture: -164dBm<br>Tracking: -166 dBm                    |
| GPS boot time                  | Cold start < 27.5s<br>Hot start < 1s<br>Recapture < 1s                                                     |
| GPS accuracy                   | Horizontal positioning accuracy: 2.5m<br>High positioning accuracy: 3.5m                                   |
| Working temperature            | -20°C~+70°C                                                                                                |
| Weight                         | 3.0g                                                                                                       |

Add: 410, Building C, Gufeng Huafeng Smart Innovation Port, Xixiang, Baoan District, Shenzhen

HTTP: [www.ai-thinker.com](http://www.ai-thinker.com)

TEL: 0755-29162996

Mail: [jane@aithinker.com](mailto:jane@aithinker.com)

## **OEM/Integrators Installation Manual**

### **Important Notice to OEM integrators**

1. This module is limited to OEM installation ONLY.
2. This module is limited to installation in mobile or fixed applications, according to Part 2.1091(b).
3. The separate approval is required for all other operating configurations, including portable configurations with respect to Part 2.1093 and different antenna configurations
4. . For FCC Part 15.31 (h) and (k): The host manufacturer is responsible for additional testing to verify compliance as a composite system. When testing the host device for compliance with Part 15 Subpart B, the host manufacturer is required to show compliance with Part 15 Subpart B while the transmitter module(s) are installed and operating. The modules should be transmitting and the evaluation should confirm that the module's intentional emissions are compliant (i.e. fundamental and out of band emissions). The host manufacturer must verify that there are no additional unintentional emissions other than what is permitted in Part 15 Subpart B or emissions are complaint with the transmitter(s) rule(s). The Grantee will provide guidance to the host manufacturer for Part 15 B requirements if needed.

### **End Product Labeling**

When the module is installed in the host device, the FCC/IC ID label must be visible through a window on the final device or it must be visible when an access panel, door or cover is easily re-moved. If not, a second label must be placed on the outside of the final device that contains the following text: "Contains FCC ID: 2ATPO-A9G     "

The FCC ID can be used only when all FCC compliance requirements are met.

In the event that these conditions cannot be met (for example certain laptop configurations or co-location with another transmitter), then the FCC/IC authorization is no longer considered valid and the FCC ID/IC ID cannot be used on the final product. In these circumstances, the OEM integrator will be responsible for re-evaluating the end product (including the transmitter) and obtaining a separate FCC/IC authorization.

### **Manual Information to the End User**

The OEM integrator has to be aware not to provide information to the end user regarding how to install or remove this RF module in the user's manual of the end product which integrates this module. The end user manual shall include all required regulatory information/warning as show in this manual.

## **Radiation Exposure Statement**

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20 cm between the radiator & your body.

## **Information for the OEMs and Integrators about antennas**

The EUT is a mobile device; maintain at least a 20 cm separation between the EUT and the user's body. If the user changes the same type of antenna and the antenna gain is greater than 3dBi, the module needs to be reevaluated. If the antenna gain is less than 3dBi, the module still meets the requirements