Frequently Asked Questions

Perfecting the Art of Electronics
ALPS

UGMZ2Ax
Bluetooth® Smart Low Energy Module Development Kit

Introduction

The purpose of this document is to explain about Alps Bluetooth® Smart modules and the Development kit used for programming.

Q1. What are the parts this FAQ is referring to?

ANS1. Alps Bluetooth® Smart Low Energy modules.

These are compliant with 4.0 and 4.1 standards

Antenna complies with the following

>> Limited Modular Approval FCCID: CWTUGMZ2AA

>> TELEC Certification Number: 011-140056

>> Declares CE Conformity

About the Modules

Q1. What are the part numbers for the modules?

ANS1. There are 2 types available.

Without Antenna type Bluetooth® Smart

>>P/N: UGMZ2A1001A

With Antenna type Bluetooth® Smart

>>P/N: UGMZ2AA001A

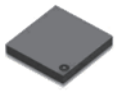
Q2. How to order the modules

ANS2. Please contact Sales@relayspec.com or call 800-526-5376.

Q3. What are the characteristics of the Modules?

ANS3. There are 2 types supported.

Support UGMZ2A1 (Bluetooth® Smart without Antenna)



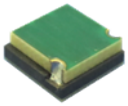
Features

Very Small and Thin Package
Low Power Consumption
UART / SPI / I2C Interface

Specifications

Size:	4.45 x 4.7 x 1.0mm
Freq:	2402-2480MHz
Chip Set:	DA14580
I/F:	UART / SPI / I2C
Others:	16 MHz crystal, 32 KHz crystal is embedded.
Current Cons.:	Rx / Tx peak 5 mA Sleep 0.6 μA

Support UGMZ2AA (Bluetooth® Smart with Antenna)



Features

Very Small and Thin Package
Low Power Consumption
UART / SPI / I2C Interface

Specifications

Size:	4.7 x 4.7 x 2.0mm
Freq:	2402-2480MHz
Chip Set:	DA14580
I/F:	UART / SPI / I2C
Others:	16 MHz crystal, 32 KHz crystal is embedded.
Current Cons.:	Rx / Tx peak 5 mA Sleep 0.6 μA

Q4. What MCU is included?

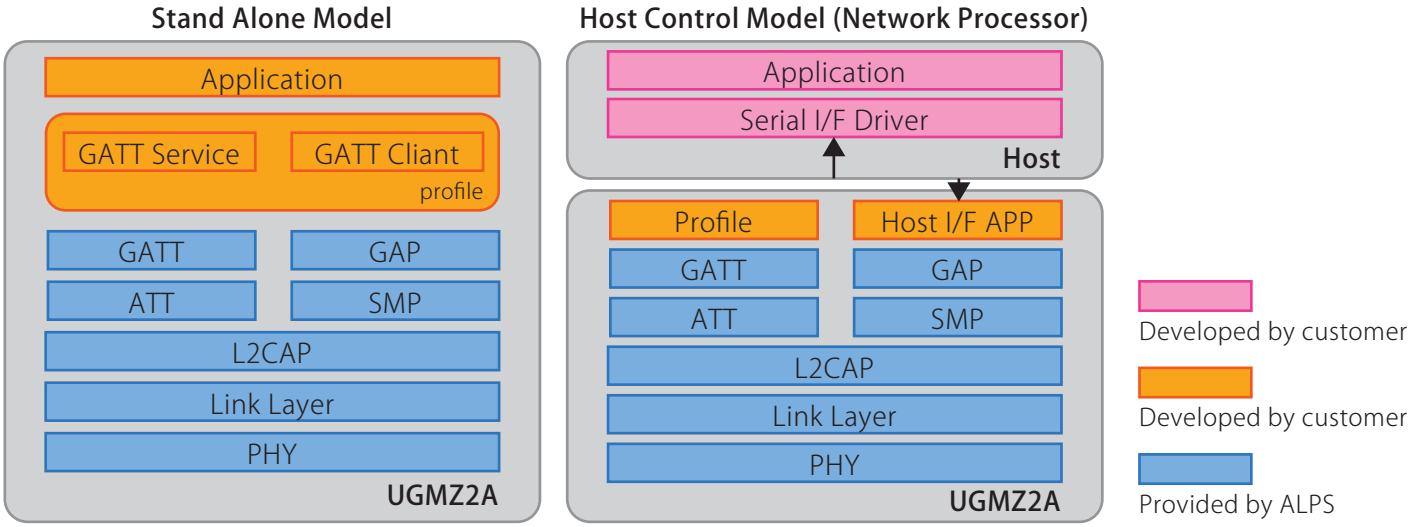
ANS4. ARM Coretex M0.

Q5. What Memory Stacks and Profiles are available?

ANS5. 32KB OTP, 42KB System SRAM, 84KB ROM, and 8KB Retention RAM. 84KB ROM contains Bluetooth® Smart Protocol stack as well as the boot code sequence.
32KB OTP is a one-time programmable memory array, used to store the application code as well as Bluetooth® Smart Profiles. It also contains the system configuration and calibration data.

Q6. What are the Software Stack options?

ANS6. Please see options below, with standalone and Host control model.



Q7. What kinds of profiles are supported?

ANS7. Please see options below.

>>FindMe
>>Proximity
>>Time
>>Health Thermometer
>>Heart Rate
>>Blood Pressure
>>Glucose
>>Battery Profile/Service
>>Alert Notification
>>Phone alert
>>Running
>>HID over GATT
>>Scan Parameters
>>Cycling

About the Development Kit

Q1. What are the part numbers for the Development Kit?

ANS1. There are 2 types available.

Without Antenna type Bluetooth® Smart
>>P/N: UGMZ2A1_EVK
With Antenna type Bluetooth® Smart
>>P/N: UGMZ2AA_EVK

Q2. How to order the kits

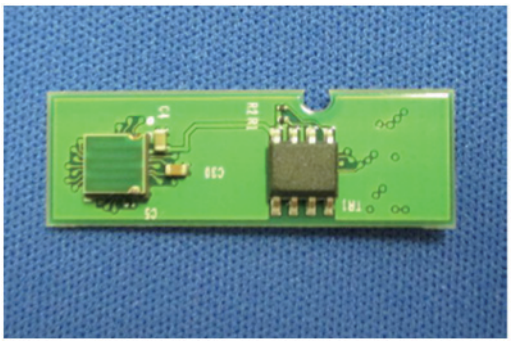
ANS2. Please contact Sales@relayspec.com or call 800-526-5376.

Q3. What are the characteristics of this Kit?

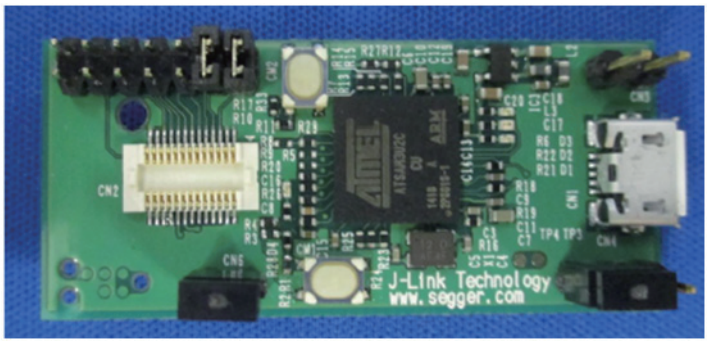
ANS3. Just by connecting the main board to a PC with a USB cable, after installing the necessary software (see "Software Contents" below), each sample application/ Profile source code can be developed. Even though it is OTP, as long as the F/W is saved to the EEPROM, even if the board is separated from the PC it can still operate.

Q4. What Hardware Components are contained in this Kit?

ANS4. This kit contains the following hardware Components.



(Daughter Board)



(Main Board)

Daughter Board Contents

ALPS Bluetooth® Smart (4.0/4.1Low Energy) Module with antenna "UGMZ2AA" mounted on the board. I/O ports, reset, and power supply and connected to Main board with connector . EEPROM device (STMicro: M24M01) is mounted on daughter board.

Main Board Contents

Functions (USB-UART, USB-JTAG, power supply) are used for "UGMZ2AA" .
This is used to connect to the PC.

Q5. What Software is contained in this Kit?

ANS5. This Software is as follows.

Software Components Required

Software on Download Link (Application runs on Win PC & installed from Dialog support web site.)
Keil™ Vision Version 5 IDE.

<Software contents>

- Software on download-link (Link)
  (http://support.dialog-semiconductor.com/product/da14580. Need to Login to access)
- Keil™ tools, with DA14580 peripherals (Link)
- Sample application/ Profile source code
  SDK can be downloaded from the Dialog site. (Link)
  (http://support.dialog-semiconductor.com/product/da14580. Need to Login to access)
- OTP programming utility
- Documentation

Q6. Does UGMZ2AA or UGMZ2A1, can work with Apple HomeKit protocol. Do you have necessary certifies? If yes, which version. If not are you going to develop HomeKit support shortly? What Software is contained in this Kit?

ANS6. This part comes with a blank OTP Bluetooth® Smart module. Software can either be developed on the customer side or using a third party, e.g. Dialog library as described above.

General FAQ

Q1. What is Bluetooth® Low Energy?

ANS1. This is a low energy version of Bluetooth®. Target is be be able to last 1-2 years on a coin cell battery, and also multiple pairing. Characteristics include small, compact size and low power consumption, approximately 1/10 of regular Bluetooth®. Sometimes called BT SMART, which is the low energy version of Bluetooth® Low Energy (BT4.0 and on)

Q2. Is it possible to give an example of real life battery use case data?

ANS2. We did a test using a CR2032 coin battery, sending data one time per minute for Alps 6 Axis sensor (3 axis Accelerometer & 3 axis Geo-magnetic sensor), Pressure sensor, UV/ Ambient Light sensor and Temperature/ Humidity sensor. We found that this allows the life to be about 1 year.

Q3. What is difference between Classic type and Low Energy type?

ANS3. The differences are multiple, as follows:

a.The channels used for connection are limited.
- Classic BT: 79 channels（all channels）
- Low Energy: 37-39ch（limited to 3）

b.Time it takes to connect
- Classic BT: 500ms～1s
- Low Energy: at most about 100ms. Also dependant on the set specification

c.Possible Set Connection Number
- Classic BT: up to 7
- Low Energy: unlimited (depending on the Master set specification)

d.Low Energy Restrictions (main restrictions)
- Voice etc. streaming data cannot be sent (as per Bluetooth® Low Energy standards)
- Packet size is supresssed, so not suitable for sending large data (pictures, video, files etc.)
- No compatibility with previous Bluetooth® standards (cannot communicate with Classic Bluetooth® products)