



GlobalTop Technology Inc.

EV-Kit User Manual (BLE Module)

Revision: A01



User Manual

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No.16 Nan-ke 9th Rd, Science-Based Industrial Park, Tainan, 741, Taiwan, R.O.C.

Tel: +886-6-5051268 / Fax: +886-6-5053381 / Email: sales@gtop-tech.com / Web: www.gtop-tech.com



Version History

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A00	2014-02-11	Yingjie	Preliminary
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Caution

- The BLE signal might be cut-off or become seriously weakened if you operate EV-kit inside buildings or nearby huge objects and obstruction. The EV-Kit may operate properly when it is within Bluetooth™ wireless coverage range of the mobile-phone device.
- The BLE EV-Kit includes all of the functional application stated in this document unless otherwise stated elsewhere.
- To avoid damaging the intricate electronic components and circuitry, please do not place EV-Kit directly under the sun for long periods of time.

Packing Contents

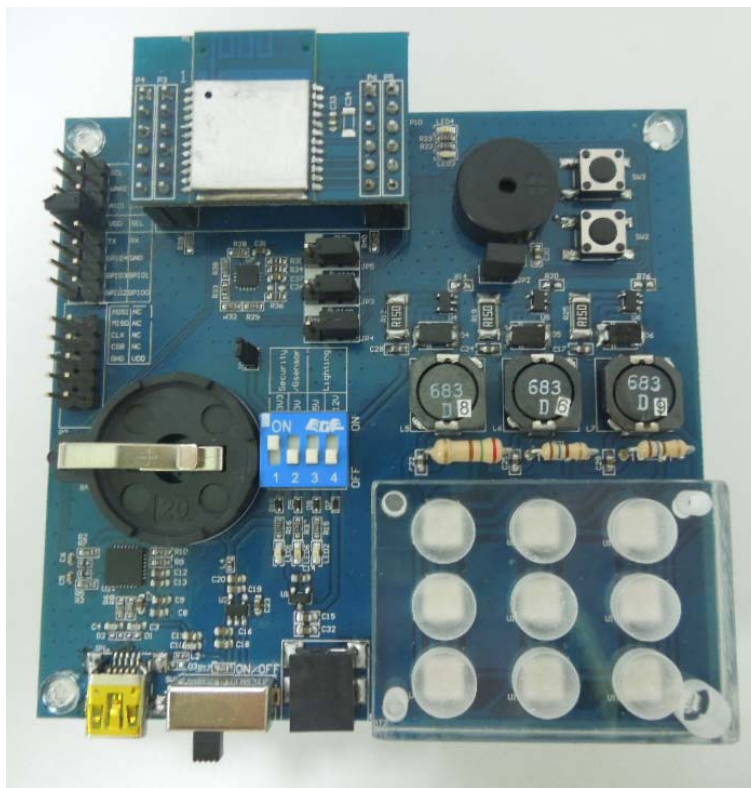
- User Manual / Software Application Program
 - CP210X USB Bridge VCP driver (for SPP profile user only)
 - APP for Android or iOS systems (available online store)
 - EV-Kit user manual

Note: Some of these documents may be delivered by E-mail. Please contact with your dealer.

- USB Cable (for supplying power & data transmission)
- Power adapter for on board lighting control
Output Voltage: 12VDC, Current: 1A
- 1 x EV-Kit with Main Board and 1 x BLE Module

1. Introduction

The main purpose of this EV-Kit is to simplify the evaluation process to our BLE modules and to help testers to operate our products with convenience and ease. Bluetooth™ Low Energy (BLE) EV-Kit enables developers to test and experience functionalities between Bluetooth™ devices and thereby opening up implementations such as keyboards, mice, medical sensors, fitness training equipment, watches, remote controls, automotive keyless entry, advertising, indoor location, smart energy appliances and proximity tagging.



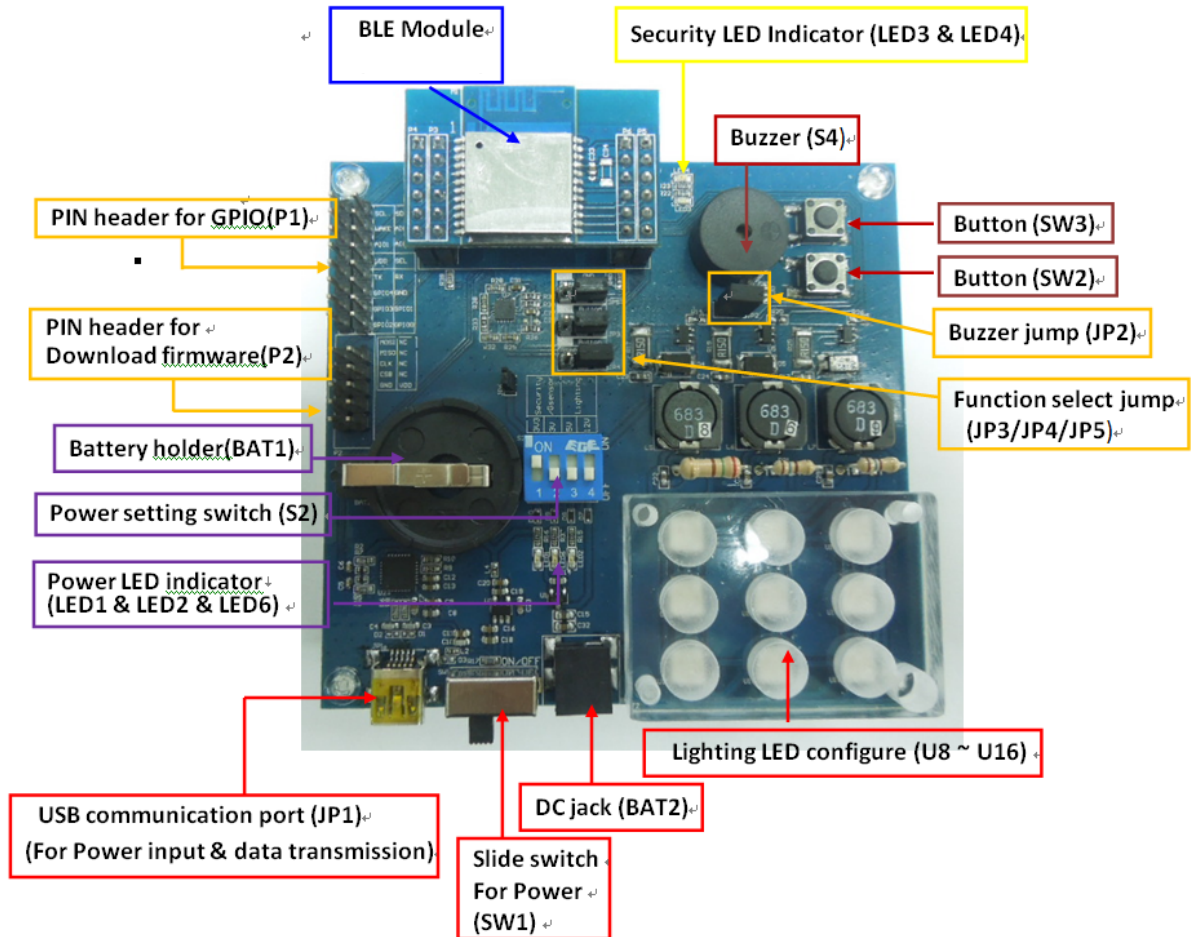
EV-Kit Features

- USB communication port (SPP application)
- Battery holder supports CR2032 coin battery (Security application)
- External power supply with 12VDC DC output (Lighting application)
- Power LED Indicator for 3v/3.3v/5 v (Red)
- Security LED indicator (Blue/ Green)
- Buzzer and button function
- 2*8 PIN header for GPIO connector (include I2C,GPIO,AIO,UART interface)
- 2*5 PIN header for download firmware connector (include SPI interface)

2. Function Description

2.1 Hardware overview

This section describes the hardware parts of the Evaluation Kit.



3. Operating Instruction

3.1 Select your application profile for configuration

Profiles are Security, Lighting, and SPP

➤ 3.1.1 BLE Module loaded with SPP profile

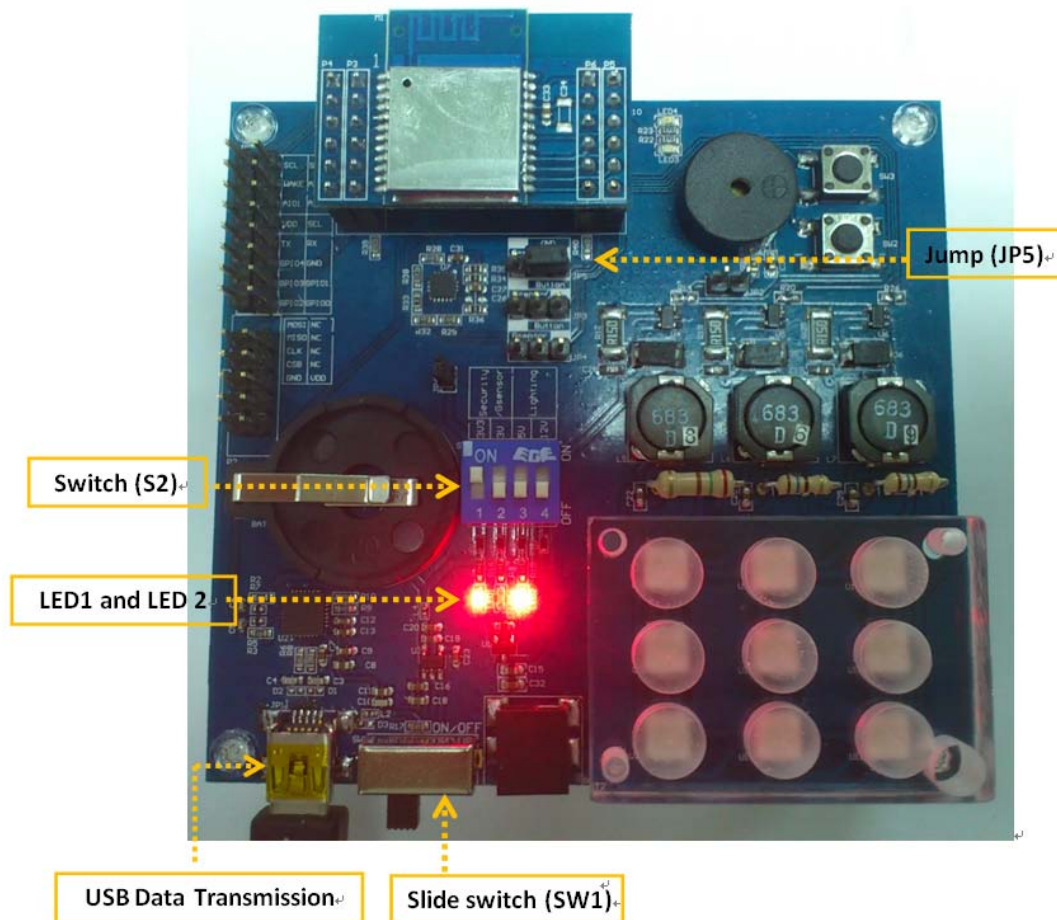
Connect the USB cable between PC and EV-Kit. The USB cable is used to power the EV-Kit and to transfer communication data with PC. Configure the EVK as described in the following steps.

Step 1: Jump (JP5) connected to ground (marked GND).

Step 2: Slide the switch (SW1) to the left to turn ON.

Step 3: Dip Switch (S2), push the first button up to ON position.

Step 4: LED 1 and LED2 LEDs should be light up as shown in the photo.



3.1.2 BLE Module loaded with Security profile

Connect the USB cable between PC and EV-Kit. The USB cable is used to power the EV-Kit. Configure the EVK as described in the following steps.

Step 1: Connect Jumper (JP5) to Ground (marked GND).

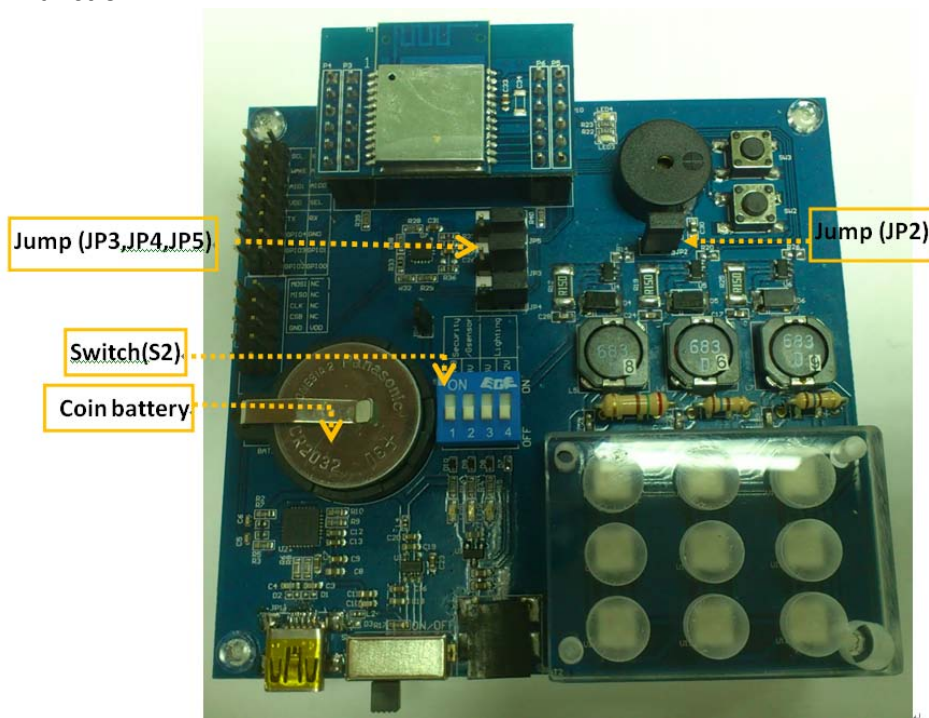
Step 2: Connect Jumper (JP3, JP4) to Button (marked Button).

Step3: Add Jumper (JP2) for Buzzer function.

Step 4: Insert CR2032 coin battery

Step 5: Dip Switch (S2), push all four buttons down to OFF position.

All of applications for security profile by customization that like LED or buzzer with button function.



Free iOS and Android controller APPs are available online for your reference



Alpwise i-BLE for Proximity & Find ME Profile testing



Smart Nudge for Re-Find ME Profile testing

Table below describes the Security Profile behavior of the BLE default firmware

Item	Scenario	Button(SW3)	Button(SW2)	Blue LED3	Green LED4	Buzzy Activity
1	Power ON	-	-	Blinks once	-	1 time alert
2	Pairing	-	-	Blinks once	-	1 time alert
3	Proximity	-	-	Blinks 3 times	-	3 time alerts
4	Find Me	-	-	Blinks 3 times	-	3 time alerts
5	Re-Find ME	Push	-	Blinks once	-	-
6	Loss of Connection			Blinks 5 times		5 time alerts
7	Battery Alive	Push		Blinks once	-	-
8	Low Battery	-	-	-	Blinks once per 10secs	-
9	Erase Pairing	-	Push	-	Blinks once	5 time alerts
10	To wakeup idel mode (When BLE disconnect 60sec will into idel mode)		Push		Blinks twice	

3.2.2 BLE Module Loaded With Lighting Profile

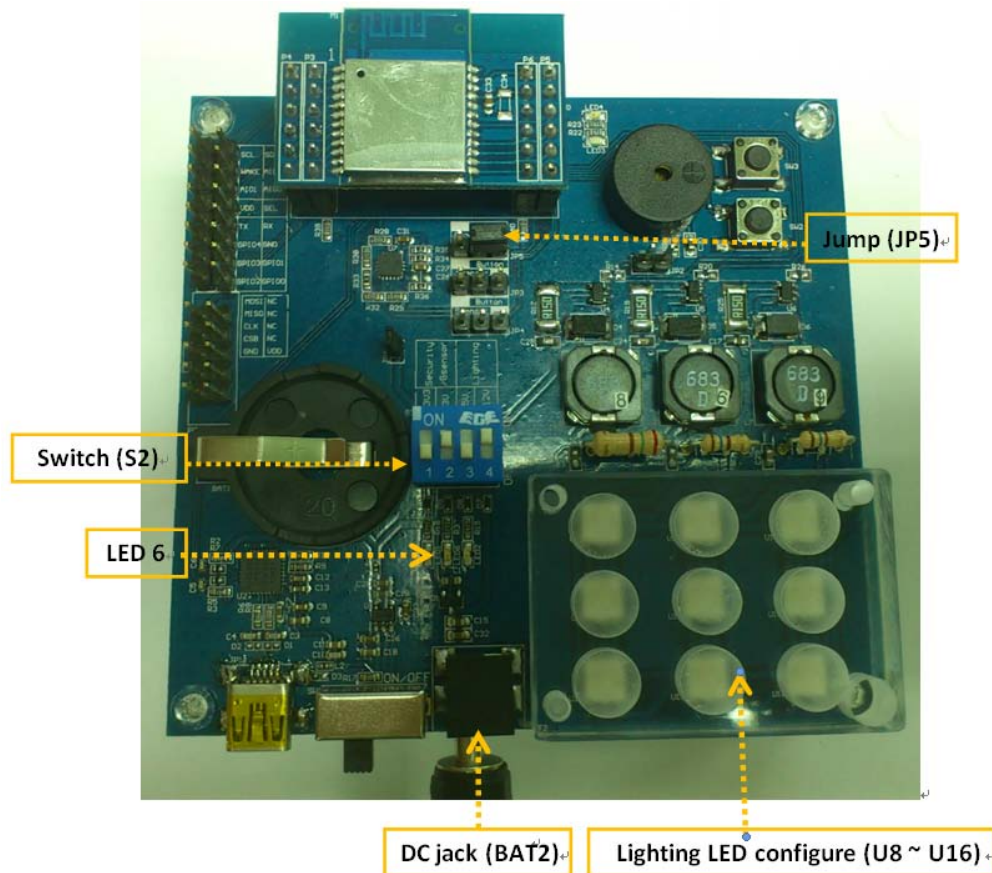
Step 1: Provide power source form DC jack. Connect 12V power adapter and check LED 6 is light up.

Step 2: Connect Jump (JP5) to Ground (marked GND).

Step 3: Dip Switch (S2), push the second and forth button up to ON position.

Step 4: Check if the LEDs on the board (U8~U16) are light up as picture.

All of applications for lighting profile by customization that like LED dimmer function.



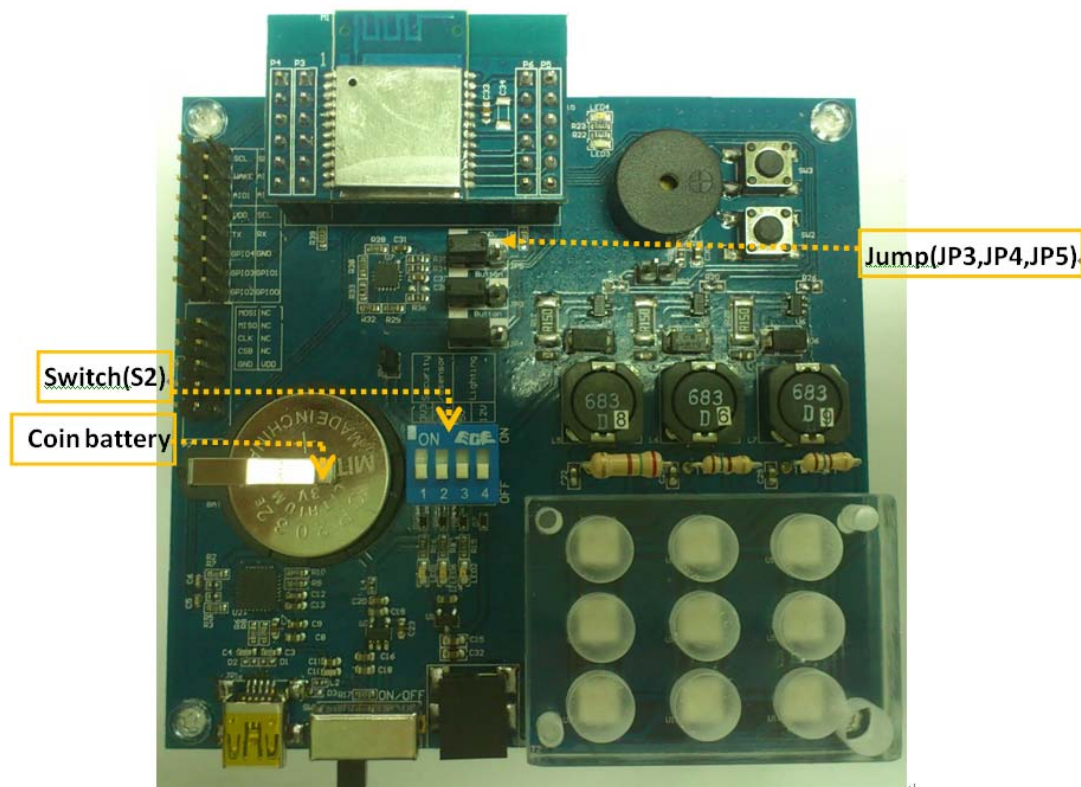
3.2.3 BLE Module and MEMS Component Interrupt Test

Step 1: Connect Jumper (JP3, JP4, and JP5) to G-sensor (marked Gsensor).

Step 2: Insert the CR2032 coin battery .

Step 3: Dip Switch (S2), push all four buttons down to OFF position.

All of applications profile base on customization function.



3.2.4 BLE Module using other profile connection PIN header Interface

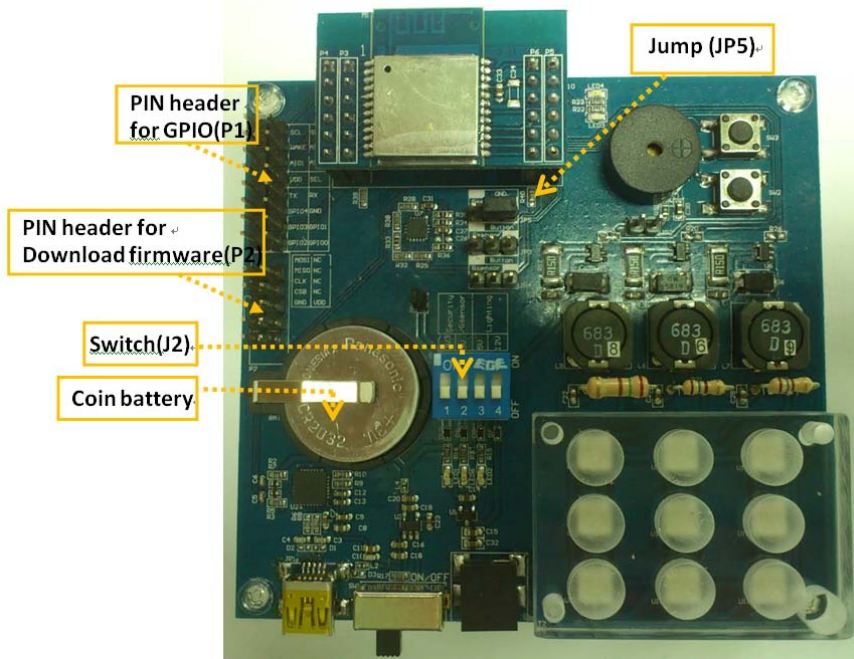
Step 1: Connect Jumper (JP5) to Ground (marked GND).

Step 2: Insert CR2032 coin battery.

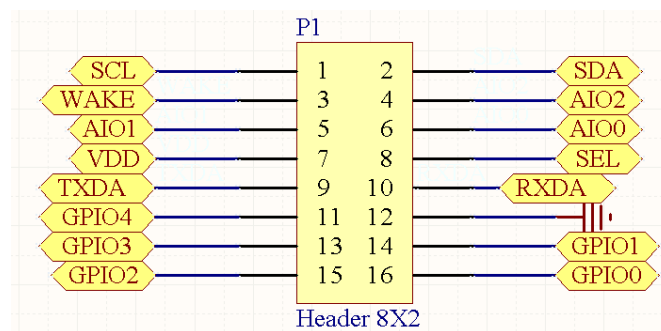
Step 3: Dip Switch (S2), push all four buttons down to OFF position.

Step 4: Using PIN Header define to execute hardware function.

All of applications profile base on customization function.

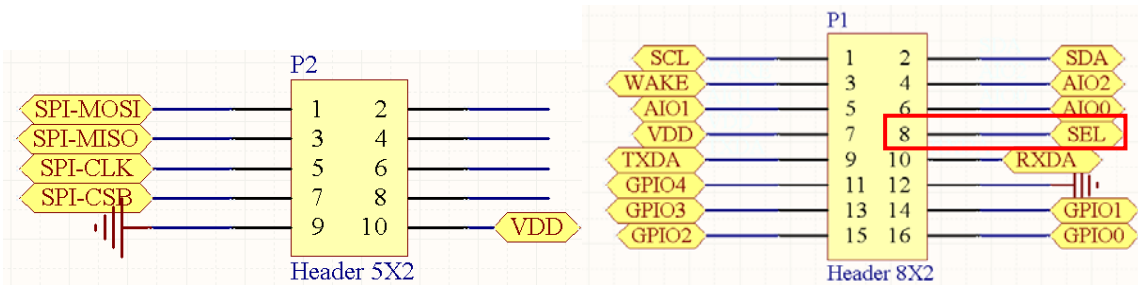


The PIN Header (P1) function for GPIO is defined below.



3.2.5 Loading New Firmware

The PIN Header (P2) configuration for download firmware is defined below.



Note: The SEL pin must connect to VDD when download firmware is need.

Connect CSR Bluetooth download firmware tool (USB to SPI transform) to PIN Header (P2) (MOSI, MISO, CLK and CSB) of the EVK as shown below. Make sure that SEL pin of PIN Header (P1) of the EVK is connected to VDD of the EVK.

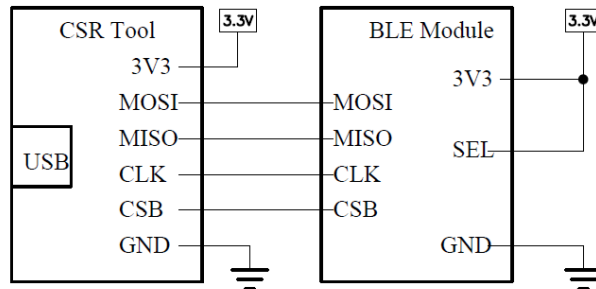


Fig. CSR Bluetooth download firmware tool (USB to SPI transform)

4. Software Usage

4.1 System requirement

PC: IBM, Pentium or above or compatible PC

Operation system: Windows XP/2003/Vista/7

USB driver: CP210xVCPInstaller.zip

4.2 USB Driver



Please double check you have the correct USB driver before you proceed with the next step. If an incorrect driver is installed, your EV-Kit will not function!

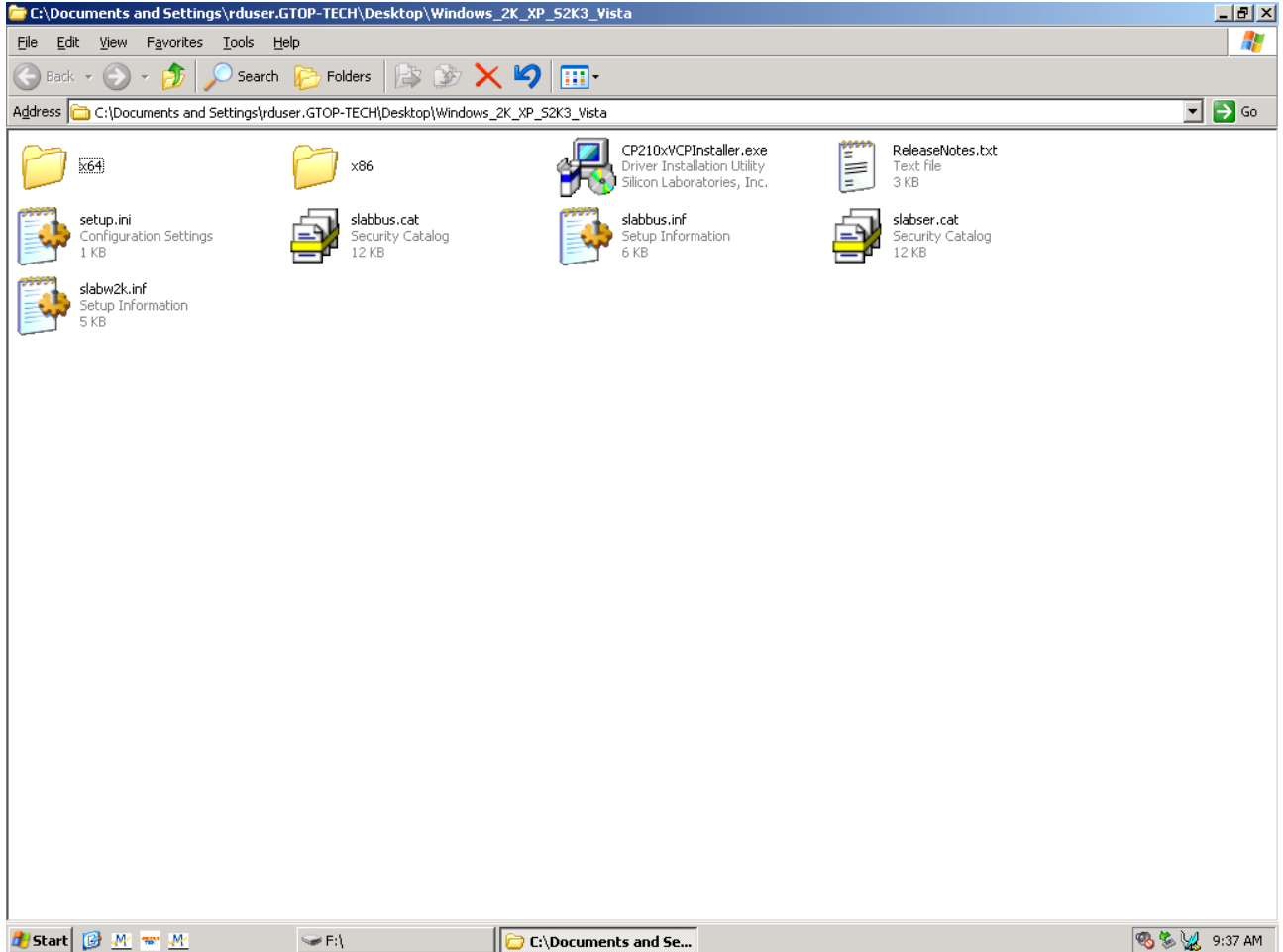
- If you have purchased the EV-Kit for use with BLE Module, please make sure you have **[CP210xVCPInstaller.zip]** installation file in the package, and proceed to the next section: **[4.3 Install the USB Driver]**.
- EV-kit USB Driver Download

From Silicon Labs Web-side (CP210x USB to UART Bridge VCP Drivers)

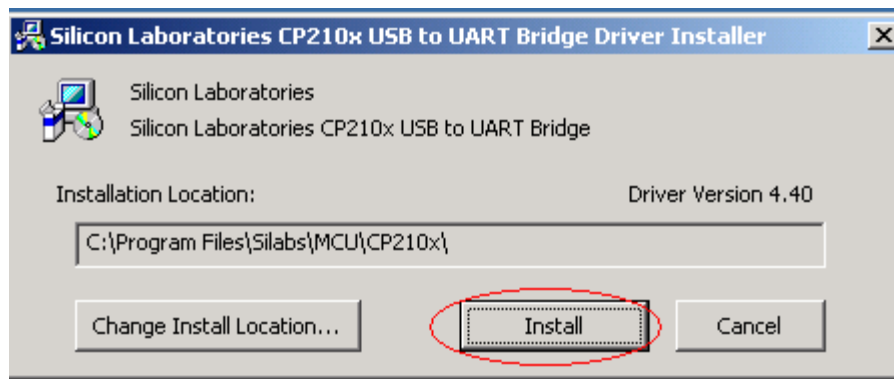
<http://www.silabs.com/products/mcu/Pages/USBtoUARTBridgeVCPDrivers.aspx>

4.3 Install the USB Driver

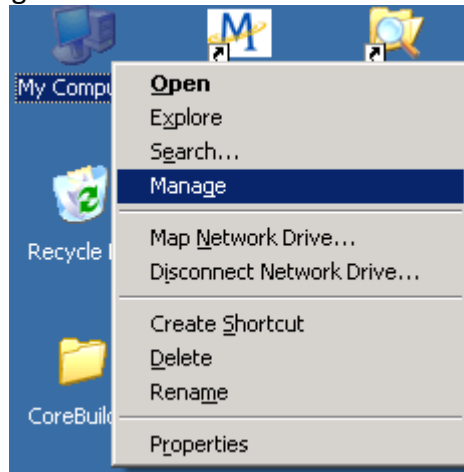
- Please extract the file [CP210xVCPInstaller.zip] and double click [CP210xVCPInstaller.exe] to begin driver installation as the figure show in below.



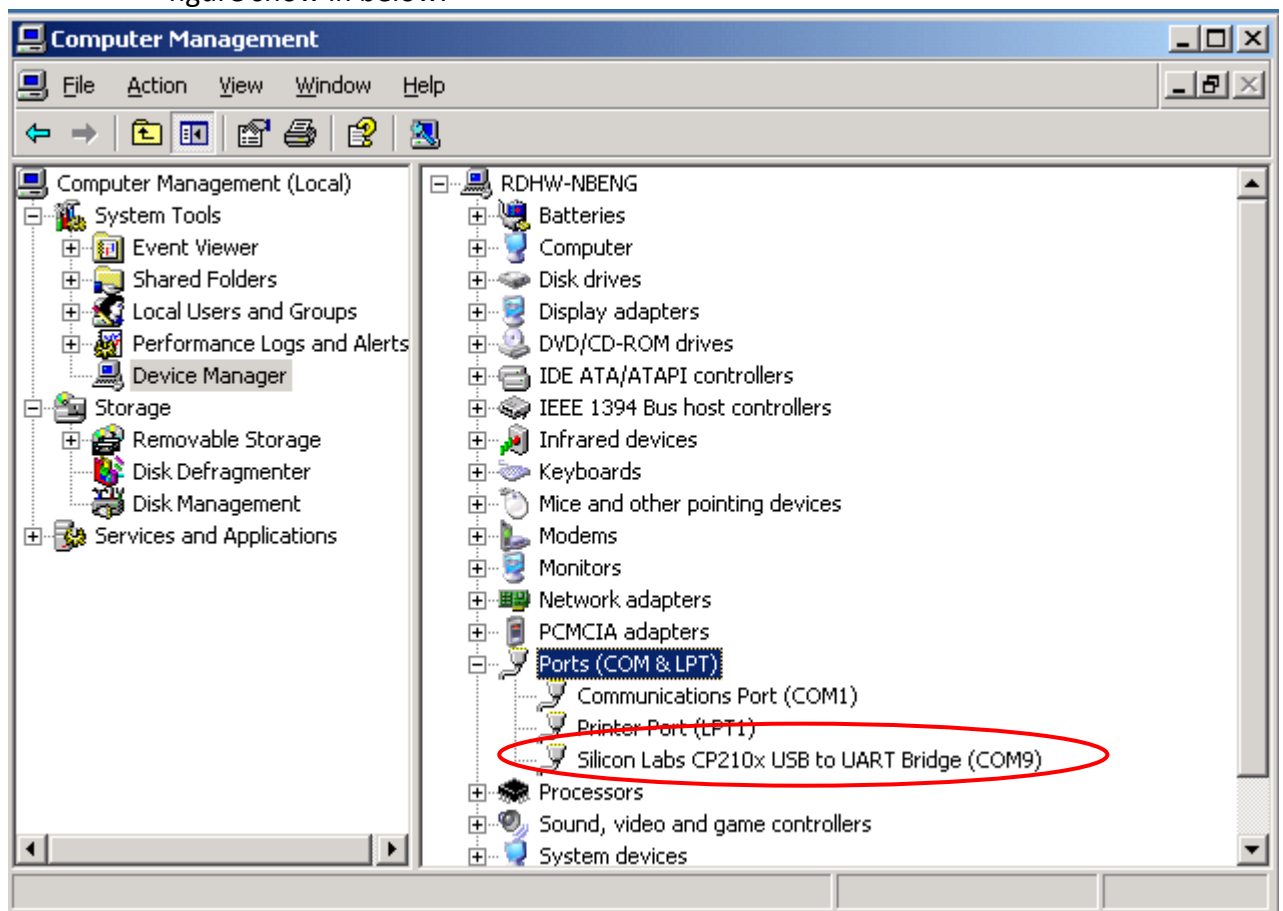
- Click [Install] as the figure show in below.
- After the installation is complete, you may need to restart your computer, please follow the instructions on screen to restart your computer.



- After the power is on, right click **<My Computer>**, and select **<Manage>**, please refer to figure shown in below.



- Left click **<Device Manager>**, and select **<Ports (COM & LPT)>**. Check to see if a device named **<Silicon Labs CP210x USB to UART Bridge (COM#)>** is present. If yes, then EV-Kit is now setup and ready for use, please refer to the figure show in below.





COM9 in this example represents the virtual COM Port number generated for the USB connection to EV-Kit.

This generated COM Port value must match the COM Port value in the program setting for the application to establish proper communication with EV-Kit.

5. Trouble-shooting

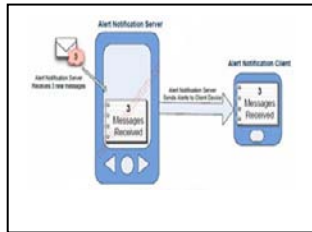
5.1 Problem with Setup

Problem	Possible Cause	Trouble shooting
Cannot find BLE device	Supply source was not setup properly.	Check to see if EV-Kit was setup properly, and make sure that the device is receiving enough power through the USB cable or other power source (Red LED should light up continuously).
No BLE data	(1) USB was not setup properly. (2) COM Port or Baud rate value is incorrect.	(1) Check to see if the USB connector to PC or EV-Kit is tightly connected. (2) Double check to see if the proper COM Port and Baud rate value was selected.

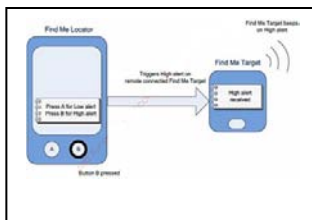
Note: If the above troubleshooting advice does not solve your problems, please send it back to us for testing and repair.

5.2 Profile Type for Varian Applications

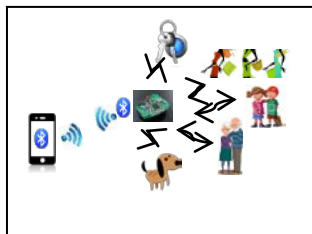
Customizable Bluetooth Low Energy (BLE) devices can be implemented with the following profile.



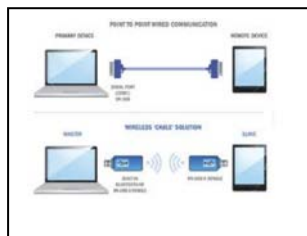
Alert Notification Profile



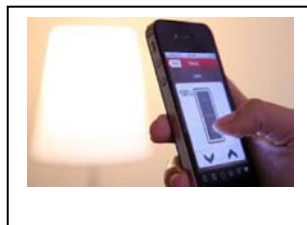
Find Me Profile



Security Profile



Serial Port Profile



Lighting Dimmer Profile



Healthy Profile