

Bluetooth 4.0 BLE Module

Model : BT0001

Manual

PenPower

The BT0001 is a high performance Bluetooth 4.0 BLE, (Bluetooth Low Energy) module using TI's CC2541 SOC chip. The module is suitable for smart hand-held device low power accessories.

The BT0001 can support ultra-low-power batteries and sensor-based data collection framework. The Bluetooth 4.0 BLE is the technology adapted wide-ranging deployment in various computing & communication application fields.



BT0001 build-in 8051 MCU, in-system software stack programmable flash memory, 8-KB RAM, and many multiple configuration options other powerful supporting features and peripherals, including UART, IIC and GPIO.

BT0001 is 25-pin I/O interface (with back size 9 pin) to bring UART, I²C or GPIO data to wireless through Bluetooth BLE protocol. BT0001 build-in the hi-efficiency PCB antenna for compact and easy assembly application.

The BT0001 is highly suited for systems where **allowing** ultralow power consumption is required. It is good **applications** to run on the system specified by various operating modes. short transition's network application.

BT0001 offers absolute interoperability with different vendors' Bluetooth through the *Bluetooth* low energy and peripheral Roles proprietary 2.4-GHz applications. It enables robust network nodes to be built with low power consumption

To speed up the design process, BT0001 provide user friendly library for both iOS ,Android, PC Windows and MAC developer. The App designer can focus on their application topic, it is not necessary for her/him to distract on wireless communication issue. In addition, we also provide software and hardware develop kit for engineer firmware development and upgrade.

Property:

Chipset :

Main Chip: TI CC2541

CPU: Low-Power 8051 core with Code protect

RAM: 8-KB RAM With Retention in All Power

Program Flash: In-System-Programmable Flash, 128KB/256KB

Watchdog Timer

Wireless:

Bluetooth low energy technology compatible

AES Security Coprocessor

2.4-GHz *Bluetooth* low energy Compliant

Excellent Receiver Sensitivity (-94 dBm at 1 Mbps)

Antenna: on board PCB antenna

Peripheral:

I²C interface

12-Bit ADC With Eight Channels and Configurable Resolution

Powerful USARTs

Battery Monitor

Temperature Sensor

Standard Conformance:

Bluetooth v4.0 Compliant Protocol Stack for Single-Mode BLE Solution

Frequency Range: 2.412 ~ 2.4835GHz

Interface:

Wireless: 2.4G Bluetooth BLE

I²C: Hardward IIC

USARTs

GPIO

Antenna: PCB Antenna on board

-Active Mode RX down to: 17.9mA

-Active Mode TX(0dbm): 18.2mA

-Power Mode 1(4-us Wake-Up): 270uA

-Power Mode 2(Sleep Timer On): 1uA

-Power Mode 3(External Interrupts): 0.5uA

-Wide Supply-Voltage Range (2 V–3.6 V)

Power Supply : 3.3V input

PCBA Dimension: 15(W) x 18(L) x 2.03 (H) mm.

Environment-Friendly Compliance: RoHS

SW:

iOS Library: Supported

Android Library: Supported

PC Windows Library: Supported

MAC OS Library: Supported

Federal Communications Commission (FCC) Statement

The final end product must be labeled in a visible area with the following: "Contains FCC ID: QIC-BT0001".

The Original Equipment Manufacturer (OEM) must ensure that the OEM modular transmitter must be labeled with its own FCC ID number. This includes a clearly visible label on the outside of the final product enclosure that displays the contents shown below. If the FCC ID is not visible when the equipment is installed inside another device, then the outside of the device into which the equipment is installed must also display a label referring to the enclosed equipment.

You are cautioned that changes or modifications not expressly approved by the part responsible for compliance could void the user's authority to operate the equipment.

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.

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 of the device.

FCC RF Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. End users must follow the specific operating instructions for satisfying RF exposure compliance. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

According to FCC Part 15 Subpart C Section 15.212, the radio elements of the modular transmitter must have their own shielding. However, due to there is no shielding for this Bluetooth Module, this module is granted as a Limited Modular Approval. When this Bluetooth Module is installed into the end product, a Class II Permissive Change or a New FCC ID submission is required to ensure the full compliance of FCC relevant requirements.