Description:

HLK-B40 is a kind of Master-Slave serial port transmission Bluetooth module based on BLE5.1, All kinds of devices with serial port can use Bluetooth wireless to send and receive data simply and quickly through this module.
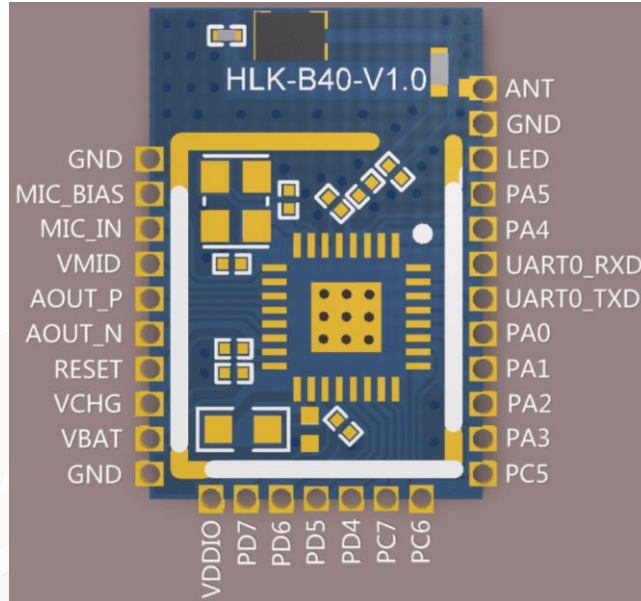
Features:

- Main frequency 48MHz, 32-bit ARM Cortex M3 core

- Fast and stable Bluetooth-serial port transmission, serial port rate up to 921600

- Master-to-one Bluetooth, which can be set to host or slave mode, supports binding encryption

- Bluetooth from the machine mode can be connected by up to 20 host devices at the same time, supporting custom broadcast data

- Based on BLE5.1, it is faster and has a longer transmission distance and can reach 40 to 100 m in an open environment

- Supports low-power modes, sleep currents of up to 6μA and custom connection and broadcast intervals

- Bluetooth transmit power can be adjusted up to 10dBm and receives up to -95dBm

- Support for OTA Bluetooth wireless upgrade module firmware, wireless configuration module parameters
- The default on-board high-quality ceramic antenna increases the transmission distance and includes an external antenna
- Built-in Watchdog, Long and reliable operation time
- Ultra-small size 14mm×9.5mm×2mm
- Wide operating voltage 1.8 to 4.2V, typical 3.3V
- Rich output pins (UART, I2C, SPI, up to 15 GPIOs, up to 4 ADCs, up to 6 PWMs) provide flexible and in-depth hardware and software custom development services
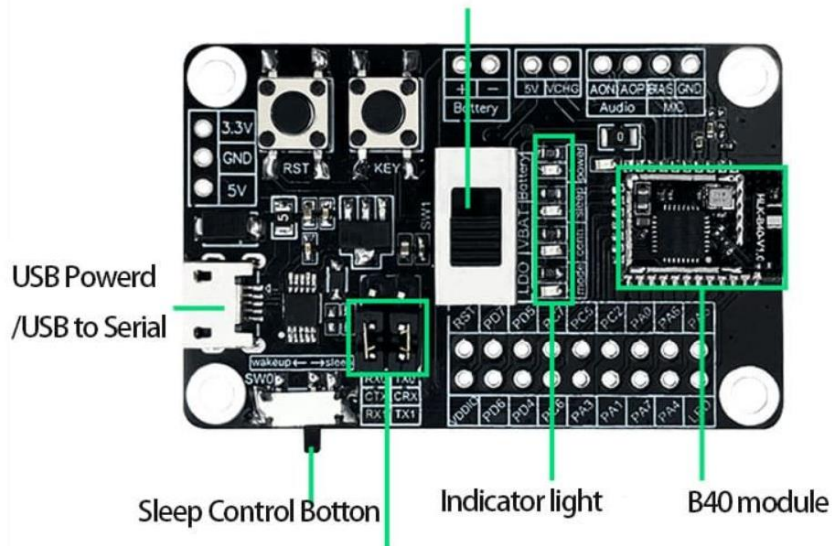
Features:

- Chip :- FR8XX
- Working frequency :- 2.402 – 2.480 GHz
- Protocol standard :- BLE5.1
- Transmit Power :- 10dBm (adjustable)
- Power consumption :- Low power consumption
- Reference distance :- 50-100m
- Dimension :- 14*9.5mm
- Package :- SMD
- Antenna :- Ceramic antenna
- Working model :- Master – slave

Pin Configuration:

Supply Voltage Selection

(Battery-external battery power supply/KD0-board USB power supply

USB Powerd /USB to Serial

Sleep Control Botton
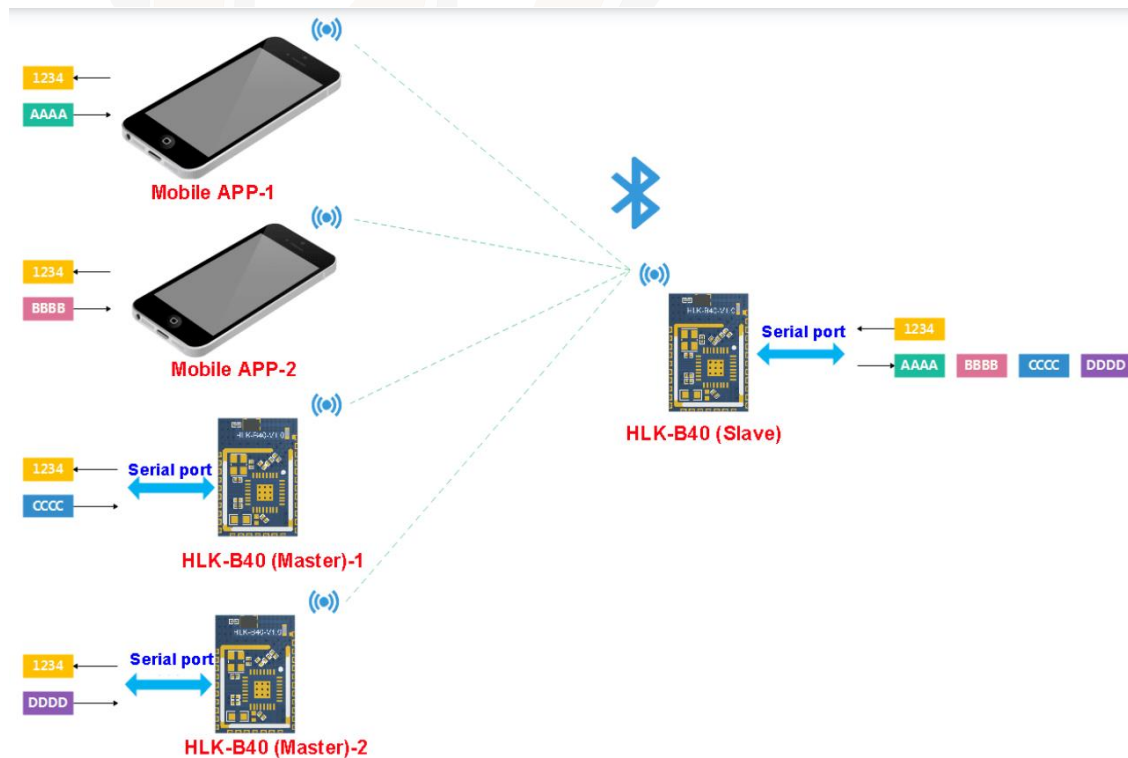
Jumper Antenna selection

Indicator light

B40 module

Serial port 0 transparent transmission/AT command sending and receiving

The principle schematic of the Bluetooth-serial port transmission function is as follows, see the quick start guide for the specific test verification method

One-to-one Bluetooth connection transmission function schematic

This module can be connected by multiple Bluetooth host devices when acting as a Bluetooth accessor, including other B40 modules as hosts. Under a multi-to-one connection, the data received from the serial port of the machine module is forwarded via Bluetooth to each connected host device, each Data from connected host devices is also forwarded to the serial port from the machine module.

A map of the many-to-one Bluetooth connection transmission function

Applications:

The serial port-Bluetooth two-way transparent transmission provided by HLK-B40 provides a simple and flexible data channel, which can be widely used in various products that need to transmit data wirelessly via Bluetooth. Examples of commonly used application scenarios are as follows:

- **Smart home/home appliances**

  Control smart sockets, smart lights, smart door locks, etc. via mobile phones
- **IOT**

  Mobile phone and device, wireless data transmission between device and device
- **Instrumentation**

  Read data, configure parameters, etc. wirelessly via Bluetooth
- **Industrial and Agricultural Control**

  Connect various control or sensing devices wirelessly via Bluetooth for reading and control, etc.
- **Medical and health**

  Health data monitoring, wireless nursing equipment, etc.
- **Automotive Electronics**

  Wireless detection and control, etc.

  Toy entertainment

  Bluetooth remote control, wireless control and transmission