STAYTRUE

# Module SDC-LE-01D

## Module Specification Document

**Document Version: V1.0**

STAYTRUE

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# I. Module Introduction

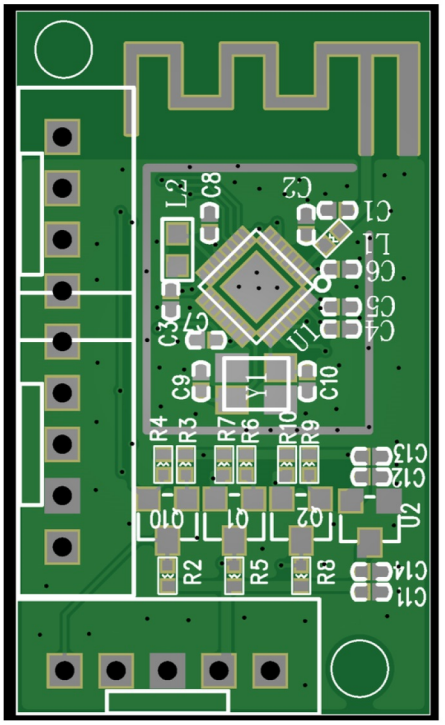
The SDC-LE-01D is an upgraded BLE Bluetooth module based on the SDC-LE-01 design, featuring a 32-bit high-performance RISC core and compliance with Bluetooth 5.0 standards. It incorporates an onboard antenna design and introduces 2.54mm pitch connector terminals, supporting 3.3V voltage compatibility and compatible with 5V level conversion circuits. The module can integrate with apps such as PuroFit, kinomap, and zwift, making it suitable for equipment like treadmills, bicycles, and rowing machines. It has obtained certifications from SRRC, FCC, and BQB.

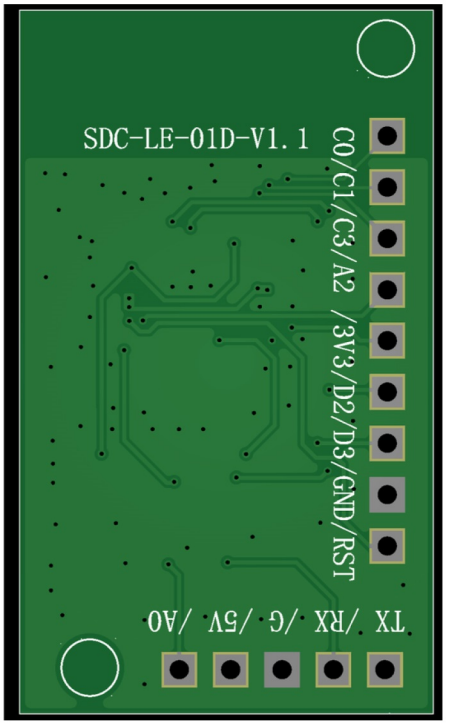
## 1、 Performance Parameter

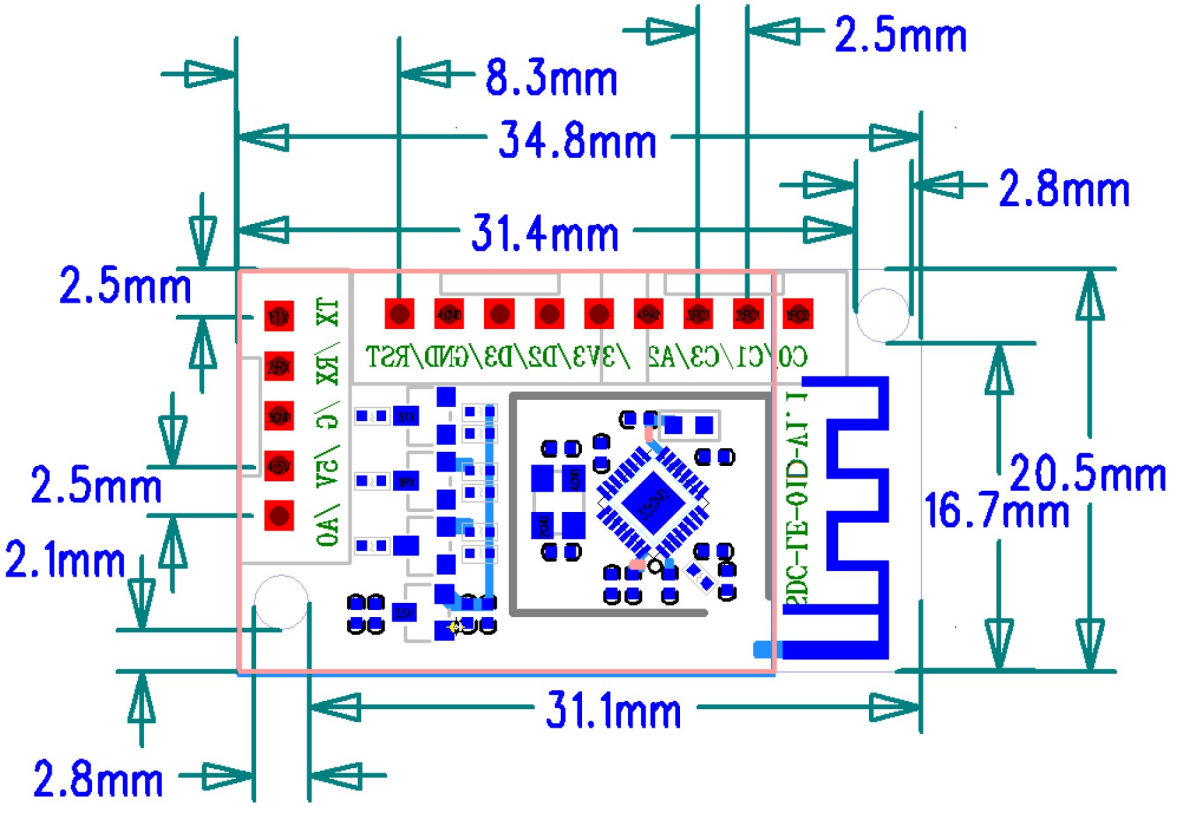
- microcontroller
  - 32-bit high-performance RISC core
  - 16 MHz clock
  - 512KB Flash
  - 40 KB cache static RAM (SRAM)
  - Operating temperature: -40°C to +105°C
- electrical character
  - Operating voltage range: 3.3V
  - Receiving current: 8.5mA
  - Transmitted current: 9.5mA@ +0dBm to 16mA@ +7dBm
  - Maximum Conducted Output Peak Power:3.49dBm
- ·Radio frequency section
  - 2.4GHz RF transceiver compliant with Bluetooth Low Energy (BLE) 5.0 specification
  - -97dBm received sensitivity
  - Programmable output power ranging from-20dBm to +7dBm
  - Single-ended RF interface
  - Frequency range: 2402 MHz to 2480 MHz
  - Modulation method: GFSK

## 2、 Module Physical Image

Dimensions: 31.4mm x 20.5mm, with 2.54mm spacing between plug terminals arranged according to standard spacing.





## 3、 Pin Wiring Diagram

| Pin definition | Pin type | Describe pin definition |
|---|---|---|
| TX | O | Serial TX data transmitter |
| RX | I | Serial RX data receiver |
| G | P | Modular ground |
| 5V | P | Module power positive terminal, range: 3V-5V, typical 5V |

## 4、 Chip Limit Parameters

| Parameter | Explain | Scope | Unit |
|---|---|---|---|
| VDD | Steady-state power supply voltage | -0.3 to 3.6 | V |
| Tamb | Working temperature | -40~+105 | ℃ |
| Tstg | Storage temperature | -40~+105 | ℃ |
| Ground | The earth | -0.3~0.3 | V |
| Voh | Digital output high level | VDD -0.3 ~ VDD+0.3 | V |
| Vol | Digital output low level | <0.4 | V |
| Ioh | Pull current | 15 | mA |
| Iol | Current inrush | 11 | mA<br>V |
| Vih | Digital input high level | ≥0.7×VDD | V |
| ViL | Digital input low level | ≤0.3×VDD | V |

✧ Absolute maximum rated value; exceeding any limit may result in chip damage.

✧ The serial port defined by the module (TX and RX) is compatible with both 5V and 3.3V systems. The 3.3V-powered serial port has a logic level of 3.3, while switching to the 5 V serial port results in a logic level of 5V.

# OEM Guidance

1. Applicable FCC rules

This module has been tested and found to comply with part 15.247 requirements for Modular Approval.

2. The specific operational use conditions

This module can be used in IoT devices. The input voltage to the module is nominally 3.3V DC. The operational ambient temperature of the module is -40 to 105 degree C. Only the embedded PCB antenna is allowed. Any other external antenna is prohibited.

3. Limited module procedures

N/A

4. Trace antenna design

N/A

5. RF exposure considerations

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment .This equipment should be installed and operated with minimum distance 20cm between the radiator& your body. This transmitter must not be located or operating in conjunction with any other antenna or transmitter

6. Antenna

Antenna type :PCB Antenna; Antenna Max. Peak Gain 0 dBi

7. Label and compliance information

When the module is installed in the host device, the FCC 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: 2BT3H-SDC-LE-01D "

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

8. Information on test modes and additional testing requirements

a)The modular transmitter has been fully tested by the module grantee on the required number of channels,modulation types, and modes, it should not be necessary for the host installer to re-test all the available transmitter modes or settings. It is recommended that the host product manufacturer, installing the modular transmitter,perform some investigative measurements to confirm that the resulting composite system does not exceed the spurious emissions limits or band edge limits (e.g., where a different antenna may be causing additional emissions).

b)The testing should check for emissions that may occur due to the intermixing of emissions with the other transmitters, digital circuitry, or due to physical properties of the host product (enclosure). This investigation is especially important when integrating multiple modular transmitters where the certification is based on testing each of them in a stand-alone configuration. It is important to note that host product manufacturers should not assume that because the modular transmitter is certified that they do not have any responsibility for final product compliance.

c)If the investigation indicates a compliance concern the host product manufacturer is obligated to mitigate the issue. Host products using a modular transmitter are subject to all the applicable individual technical rules as well as to the general conditions of operation in Sections 15.5, 15.15, and 15.29 to not cause interference. The operator of the host product will be obligated to stop operating the device until the interference have been corrected .

9. Additional testing, Part 15 Subpart B disclaimer

The final host / module combination need to be evaluated against the FCC Part 15B criteria for unintentional radiators in order to be properly authorized for operation as a Part15 digital device. The host integrator installing this module into their product must ensure that the final composite product complies with the FCC requirements by a technical assessment or evaluation to the FCC rules,including the transmitter operation and should refer to guidance in KDB 996369. For host products with certified modular transmitter, the frequency range of investigation of the composite system is specified by rule in Sections 15.33(a)(1) through (a)(3), or the range applicable to the digital device, as shown in Section 15.33(b)(1), whichever is the higher frequency range of investigation. When testing the host product, all the transmitters must be operating. The transmitters can be enabled by using publiclyavailable drivers and turned on, so the transmitters are active. In certain conditions it might be appropriate to use a technology-specific call box (test set) where accessory devices or drivers are not available. When testing for emissions from the unintentional radiator, the transmitter shall be placed in the receive mode or idle mode, if possible. If receive mode only is not possible then, the radio shall be passive (preferred) and/or active scanning. In these cases, this would need to enable activity on the communication BUS (i.e., PCIe, SDIO, USB) to ensure the unintentional radiator circuitry is enabled.

Testing laboratories may need to add attenuation or filters depending on the signal strength of any active beacons (if applicable) from the enabled radio(s). See ANSI C63.4, ANSI C63.10 for further general testing details.

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

**FCC 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 20cm between the radiator& your body. This transmitter must not be located or operating in conjunction with any other antenna or transmitter.

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.