WEIMEI VIP-BMS BLE01 Bluetooth Module User Manual

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Contents

Overview

VIP-BMSBLE01 is a high-performance, ultra-low-power consumption(Bluetoot Low Energy) radio frequency of Dongguan Weimei Guangze Electronic Technology Co., LTD., with BK Bluetooth 5 SOC BK3432 as the core processor.0

Transceiver system module.This module integrates a high-performance 32-bit M0 MCU kernel to achieve superior stability, following a low-power Bluetooth protocol suitable for single-mode low-power Bluetooth applications.

The module technical parameters

- **Power supply range:** 2V-3.6V DC
- **Operating frequency:** ISM frequency band (2.400~2.483GHz)
- **Modulation mode:** GFSK
- **Maximum emission power:** + 4dBm
- **Transmission distance:** 60m (open and static environment)

- **Operating temperature:** -40℃ – + 125℃
- Power **consumption:** Normal mode: TX 4.8mA (transmit power 0dBm),
- RX 5.1mA Supend mode:
- **Deep sleep mode:** 0.5μA
- **Bluetooth version:** BLE V 5.0 (support for slave mode only)
- **Antenna specification:** onboard snake-shaped antenna
- **Receive sensitivity:** -92 dBm
- **Interface type:** UART (four-wire serial port)
- **Primary Service UUID:** Primary service FA00

Application areas

- Bluetooth remote control door lock
- Medical care equipment
- Smart wearable devices smart home
- Bluetooth electronic weighing weighing
- A Bluetooth printer device
- Bluetooth mouse, keyboard, operating lever and other consumer electronics devices
- Sports and fitness equipment
- Bluetooth anti-loss device
- Bluetooth selfie device
- Bluetooth remote control device
- Bluetooth tag, beacon
- A Bluetooth bracelet, a watch
- Bluetooth wearables
- Bluetooth blood monitor, blood glucose meter
- Low power Bluetooth Adapter, Bluetooth 5 adapter.0

Instructions

Description of the instruction format:

Set instruction: eg: FA55 (for fixed header) -06 (instructioncode) -03 (data length)

Any data that does not start with FA55 is thoroughly transmitteddata; Data length: the unit is Byte, the length data is the actual length; Total sum check = instruction code + data length + data value.

Set the device name

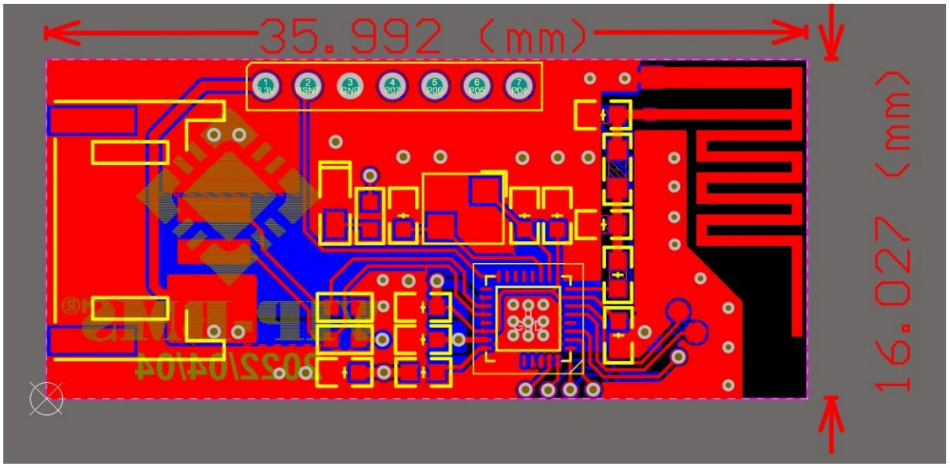
head of contracted labour	instruction code	DL	Data value
FA55	06	Device name length linear measure	Device name da

Get response data

head of contracted labour	instruction code	DL	Data value
FA55	06	00	NC

Note: The module name is the 16 decimal data corresponding totheASCII code table The Module name modification takes effect immediately.

Module size



FCC Statement

FCC standards: FCC CFR Title 47 Part 15 Subpart C Section 15.247
PCB Antenna with antenna gain 0dBi

We will retain control over the final installation of the modular such that compliance of the end product is assured. In such cases, an operating condition on the limit modular approval for the module must be only approved for use when installed in devices produced by a specific manufacturer. If any hardware modify or RF control software modify will be made by host manufacturer,C2PC or new certificate should be apply to get approval,if those change and modification made by host manufacturer not expressly approved by the party responsible for compliance ,then it is illegal.

FCC Radiation Exposure Statement

The modular can be installed or integrated in mobile or fix devices only. This modular cannot be installed in any portable device. This modular complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter. This modular must be installed and operated with a minimum distance of 20 cm between the radiator and user body.

If the FCC identification number is not visible when the module is installed inside another device, then the outside of the device into which the module is installed must also display a label referring to the enclosed module. This exterior label can use wording such as the following: “Contains Transmitter Module FCC ID: 2A63B-BLE01 Or Contains FCC ID: 2A63B BLE01”

OEM INTEGRATION INSTRUCTIONS:

This device is intended only for OEM integrator under the following conditions:

The module must be installed in the host equipment such that 20 cm is maintained between the antenna and users, and the transmitter module may not be co-located with any other transmitter or antenna. The module shall be only used with the internal on-board antenna that has been originally tested and certified with this module. External antennas are not supported. As long as these 3 conditions above are met, further transmitter test will not be required.

However, the OEM integrator is still responsible for testing their end-product for any additional compliance requirements required with this module installed (for example, digital device emissions, PC peripheral requirements, etc.). The end-product may need Verification testing, Declaration of Conformity testing, a Permissive Class II Change or new Certification. Please involve a FCC certification specialist in order to determine what will be exactly applicable for the end-product.

Validity of using the module certification:
In the event that these conditions cannot be met (for example certain laptop configurations or colocation with another transmitter), then the FCC authorization for this module in combination with the host equipment is no longer considered valid and the FCC ID of the module cannot be used on the final product. In these circumstances, the OEM integrator will be responsible for re-evaluating the end product (including the transmitter) and obtaining a separate FCC authorization. In such cases, please involve a FCC certification specialist in order to determine if a Permissive Class II Change or new Certification is required.

Upgrade Firmware:
The software provided for firmware upgrade will not be capable to affect any RF parameters as certified for the FCC for this module, in order to prevent compliance issues.

End product labeling:
This transmitter module is authorized only for use in device where the antenna may be installed such that 20 cm may be maintained between the antenna and users. The final end product must be labeled in a visible area with the following: “Contains 2A63B BLE01”.

Information that must be placed in the end user manual:

The OEM integrator has to be aware not to provide information to the end user regarding how to install or remove this RF module in the user’s manual of the end product which integrates this module. The end user manual shall include all required regulatory information/warning as show in this manual.

When the module is installed inside another device, the user manual of the host must contain below warning statements;

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.

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

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part15 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.

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

The devices must be installed and used in strict accordance with the manufacturer's instructions as described in the user documentation that comes with the product.

Any company of the host device which install this modular with limit modular approval should perform the test of radiated & conducted emission and spurious emission,etc. according to FCC part 15C : 15.247 ,15B Class B requirement, Only if the test result comply with FCC part 15C : 15.247,15B Class B requirement then the host can be sold legally.

Compliance list INTEGRATION INSTRUCTIONS for 996369 D03 OEM the and 996369 D03 OEM by Sections 2.2 through 2.10.

Requirement	Yes	N/A	Comment

2.2 List of applicable FCC rules List the FCC rules that are applicable to the mo dular transmitter. These are the rules that specifically establish the bands of operation, th e power, spurious emissions, and operating fun damental frequencies. DO NOT list compliance to unintentional-radiator rules (Part 15 Subpart B) since that is not a condition of a module grant that is extended to a host manufacturer. S ee also Section 2.10 below concerning the nee d to notify host manufacturers that further testin g is required.3	**YES**		Refer to instruction FCC standards: FCC standards: FCC CFR Title 47 Part 15 Subpart C Section 15.247

2.3 Summarize the specific operational use conditions Describe use conditions that are applicable to t he modular transmitter, including for example a ny limits on antennas, etc. For example, if point -to-point antennas are used that require reducti on in power or compensation for cable loss, the n this information must be in the instructions. If t he use condition limitations extend to professio nal users, then instructions must state that this i nformation also extends to the host manufactur er's instruction manual. In addition, certain infor mation may also be needed, such as peak gain per frequency band and minimum gain, specific ally for master devices in 5 GHz DFS bands.	**YES**		Refer to instruction The module is limited to the following antenn a: Antenna Type: PCB Antenna Antenna Gain: 0dBi

2.4 Limited module procedures If a modular transmitter is approved as a “limite d module,” then the module manufacturer is res ponsible for approving the host environment th at the limited module is used with. The manufac turer of a limited module must describe, both in the filing and in the installation instructions, the alternative means that the limited module manu facturer uses to verify that the host meets the n ecessary requirements to satisfy the module li miting conditions. A limited module manufacturer has the flexibilit y to define its alternative method to address the conditions that limit the initial approval, such as: shielding, minimum signaling amplitude, buffered modulation/data inputs, or power supply regulation. The alternative method could include that the limited module manufacturer re views detailed test data or host designs prior to giving the host manufacturer approval. This limited module procedure is also applicabl e for RF exposure evaluation when it is necessary to demonstrate compliance in a specific host. The module manufacturer must st ate how control of the product into which the m odular transmitter will be installed will be maintained such that full compliance of the pro duct is always ensured. For additional hosts oth er than the specific host originally granted with a limited module, a Class II permissive change i s required on the module grant to register the a dditional host as a specific host also approved with the module.	**Yes**		Refer to instruction We will retain control over the final installatio n of the modular such that compliance of the end product is assured. In such cases, an o perating condition on the limit modular appro val for the module must be only approved for use when installed in devices produced by a specific manufacturer. If any hardware modif y or RF control software modify will be made by host manufacturer,C2PC or new certificat e should be apply to get approval,if those ch ange and modification made by host manufa cturer not expressly approved by the party r esponsible for compliance ,then it is illegal.
2.5 Trace antenna designs			

For a modular transmitter with trace antenna designs, see the guidance in Question 11 of KDB Publication 996369 D02 FAQ – Modules for Micro-Strip Antennas and traces. The integration information shall include for the TCB review the integration instructions for the following aspects: layout of trace design, parts list (BOM), antenna, connectors, and isolation requirements. • a) Information that includes permitted variances (e.g., trace boundary limits, thickness, length, width, shape(s), dielectric constant, and impedance as applicable for each type of antenna); • b) Each design shall be considered a different type (e.g., antenna length in multiple(s) of frequency, the wavelength, and antenna shape (traces in phase) can affect antenna gain and must be considered); • c) The parameters shall be provided in a manner permitting host manufacturers to design the printed circuit (PC) board layout; • d) Appropriate parts by manufacturer and specifications; • e) Test procedures for design verification; and • f) Production test procedures for ensuring compliance. The module grantee shall provide a notice that any deviation(s) from the defined parameters of the antenna trace, as described by the instructions, require that the host product manufacturer must notify the module grantee that they wish to change the antenna trace design. In this case, a Class II permissive change application is required to be filed by the grantee, or the host manufacturer can take responsibility through the change in FCC ID (new application) procedure followed by a Class II permissive change application.		N/A	The module has a PCB Antenna

2.6 RF exposure considerations It is essential for module grantees to clearly and explicitly state the RF exposure conditions that permit a host product manufacturer to use the module. Two types of instructions are required f or RF exposure information: (1) to the host product manufacturer, to define the application conditions (mobile, portable – xx cm from a per son's body); and (2) additional text needed for t he host product manufacturer to provide to end users in their end-product manuals. If RF expos ure statements and use conditions are not provi ded, then the host product manufacturer is requ ired to take responsibility of the module through a change in FCC ID (new application).	**YES**		Refer to instruction The modular can be installed or integrated i n mobile or fix devices only. This modular ca nnot be installed in any portable device. This modular complies with FCC RF radiatio n exposure limits set forth for an uncontrolled environment. This transmitter must not be co-located oroperating in conjun ction with any other antenna or transmitter. This modular must be installed and operated with a minimum distance of 20 cm betweent he radiator and user body.

2.7 Antennas A list of antennas included in the application for certification must be provided in the instructions. For modular transmitters approved as limited modules, all applicable professional i nstaller instructions must be included as part of the information to the host product manufacture r. The antenna list shall also identify the antenn a types (monopole, PIFA, dipole, etc. (note that for example an “omni-directional antenna” is no t considered to be a specific “antenna type”)). F or situations where the host product manufacturer is responsible for an external con nector, for example with an RF pin and antenna trace design, the integration	YES		Refer to instruction The module is limited to the following antenn a: Antenna Type: PCB Antenna Antenna Gain: 0dBi
instructions shall inform the installer that unique antenna connector must be used on the Part 15 authorized transmitters used in the host product. The module manufacturers shall provi de a list of acceptable unique connectors.			

2.8 Label and compliance information Grantees are responsible for the continued compliance of their modules to the FCC rules. This includes advising host product manufacturers that they need to provide a physical or e-label stating “Contains FCC ID” with their finished product. See Guidelines for Labeling and User Information for RF Devices – KDB Publication 784748.	**YES**		Refer to instruction If the FCC identification number is not visible when the module is installed inside a nother device, then the outside of the device into which the module is installed must also display a label referring to the enclosed module. This exterior label can use wording such as the following: “Contains Transmitter Module FCC ID: 2A63B-BLE01 Or Contains FCC ID: 22A63B-BLE01”

2.9 Information on test modes and additional testing requirements Additional guidance for testing host products is given in KDB Publication 996369 D04 Module Integration Guide. Test modes should take into consideration different operational conditions for a stand-alone modular transmitter in a host, as well as for multiple simultaneously transmitting modules or other transmitters in a host product. The grantee should provide information on how to configure test modes for host product evaluation for different operational conditions for a stand-alone modular transmitter in a host, versus with multiple, simultaneously transmitting modules or other transmitters in a host. Grantees can increase the utility of their modular transmitters by providing special means, modes, or instructions that simulates or characterizes a connection by enabling a transmitter. This can greatly simplify a host manufacturer's determination that a module as installed in a host complies with FCC requirements.	**YES**		Refer to instruction Any company of the host device which install this modular with limit modular approval should perform the test ofradiated & conducted emission and spurious emission, etc. according to FCC part 15C: 15.247 and 15.209 &15.207, 15B Class B requirement, Only if the test result comply with FCC part 15C: 15.247 and 15.209 &15.207, 15B Class B requirement then the host can be sold legally. The module is installed in the host and can be transmitted independently.

2.10 Additional testing, Part 15 Subpart B disclaimer The grantee should include a statement that the modular transmitter is only FCC authorized for the specific rule parts (i.e., FCC transmitter rules) listed on the grant, and that the host product manufacturer is responsible for compliance to any other FCC rules that apply to the host not covered by the modular transmitter grant of certification. If the grantee markets their product as being Part 15 Subpart B compliant (when it also contains unintentional-radiator digital circuity), then the grantee shall provide a notice stating that the final host product still requires Part 15 Subpart B compliance testing with the modular transmitter installed.6	**Yes**		Refer to instruction The module is installed in the host, and the host must be evaluated to comply with Part 15 Subpart B requirements

Company information

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Documents / Resources

	**WEIMEI VIP-BMS BLE01 Bluetooth Module** [pdf] User Manual BLE01, 2A63B-BLE01, 2A63BBLE01, VIP-BMS BLE01 Bluetooth Module, VIP-BMS BLE01, Bluetooth Module

References

- Global Biopharmaceutical Company - Bristol Myers Squibb