ECARE TP972 Bluetooth Module User Manual

TP972 Bluetooth module specification

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Product Overview

The TP972 Bluetooth module is an intelligent wireless data transmission Bluetooth module independently developed by our company. It has the characteristics of low cost and low power consumption. In actual applications, customers only need to cooperate with the corresponding firmware, access the application product, and quickly connect to control the product through instructions.

Application fields

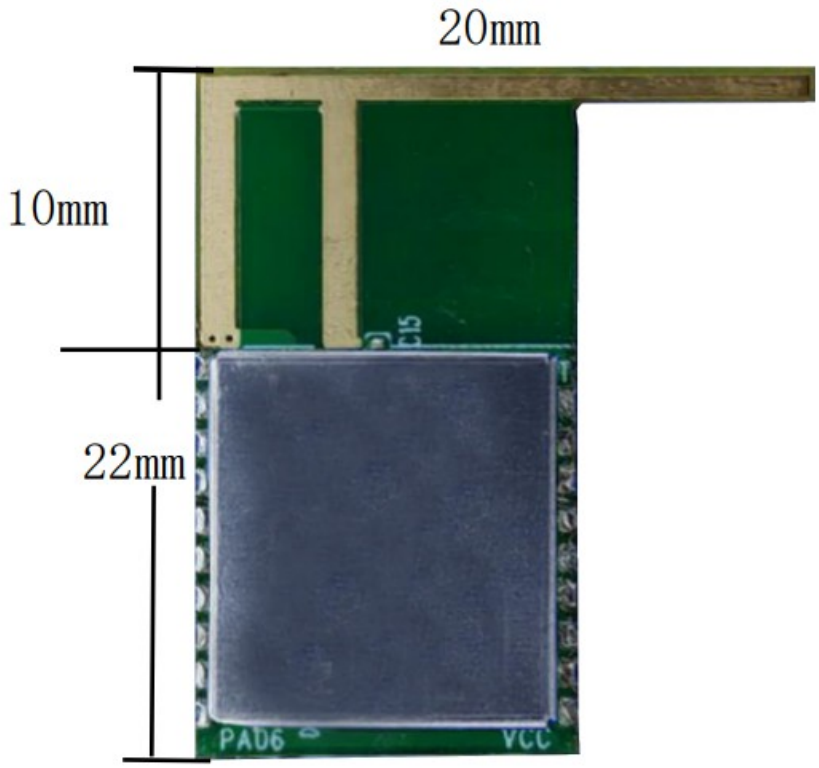
This module is very convenient to connect to Bluetooth devices of digital products such as mobile phones, tablets, notebooks, etc., and realizes command control of the product through wireless data transmission .

- Smart home appliances
- Smart toys
- Bluetooth control

Module performance parameters:

Operating voltage: 1.71vV-3.8V
Operating temperature: -2077~+857
Modulation mode: GFSK
Medulation frequency: 2402MHz – 2483.5MHz
Maximum transmitting power: +6dBm
Receiving current: 3.6mA @1Mbps GFSK
Emission current: 4.1mA @0dBm
Emission current : 8.2mA @6dBm
Low power mode current: 27uA/MHz in Active Mode @76.8MHz
Deep sleep pattern: 1.4uA @EM2 Deep Sleep
Receiving sensitivity: -98.9dBm @1Mbps GFSK

Module size diagram



Module function pins

Pin No	Pin Name	Type	Description
1	PR2	I/O	Universal GP IO
2	P131	I/O	Universal GP IO
3	PRO	I/O	Universal GP IO
4	PAO	I/O	Universal GP IO
5	PAI	I/O	SWCLK: Serial debugging programming interface cloc k
6	PA2	I/O	SWDIO: Serial debugging programming interface clock
7	PA3	I/O	Universal GP IO
8	PA4	I/O	Universal GP IO
9	TXD	DO	PA5: UART TXD
10	RXD	DI	PA6: UART RXD
11	GND	DC	electrically
12	GND	DC	electrically
13	NC	I/O	Disconnected: The PD1 is internally connected to a 32. 768KHz crystal
14	NC	I/O	Disconnected: The PDO is internally connected to a 32 .768KHz crystal
15	VCC	DV	Power source:3.3V
16	GND	DC	electrically
17	PCO	1/0	Universal GP I0
18	PC1	I/O	Universal GP I0
19	PC2	I/O	Universal GP I0
20	PC3	I/O	UniversalGP I0
21	PC4	I/O	Universal GP I0
22	PC5	I/O	Universal GP I0
23	RES	I/O	Reset Reset pin: active low

Notes:

1. Regarding the usage environment of wireless Bluetooth, wireless signals including Bluetooth applications are greatly affected by the surrounding environment. Obstacles such as trees and metals will absorb wireless signals to a certain extent. Therefore, in practical applications, the distance of data transmission is affected by Certain impact.
2. Since the Bluetooth module must be matched with the existing system and placed in the casing, the metal casing has a shielding effect on wireless radio frequency signals. So it is not recommended to install it in a metal enclosure.

FCC Statement
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.

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, pursua nt to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful inte rference in a residential installation. This equipment generates uses and can radiate radio frequency energy a nd, if not installed and used in accordance with the instructions, may cause harmful interference to radio com munications. 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 turn ing 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 receivingantenna.
- 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 important announcement

Important Note:
Radiation Exposure Statement
This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. The device can be used in portable exposure condition without restriction.
Important Note:
In the event that these conditions cannot be met (for example certain laptop configurations or co-location with another transmitter), then the FCC authorization is no longer considered valid and the FCC ID 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.
End Product Labeling
The final end product must be labeled in a visible area with the following"
Contains FCC ID: 2AATP-TP971
Manual Information to the End User
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.

Integration instructions for host product manufacturers according to KDB 996369 D03
OEM Manual v01
2.2 List of applicable FCC rules
CFR 47 FCC PART 15 SUBPART C has been investigated. It is applicable to the modular transmitter
2.3 Specific operational use conditions
This module is stand-alone modular. If the end product will involve the Multiple simultaneously transmitting condition or different operational conditions for a stand-alone modular transmitter in a host, host manufacturer have to consult with module manufacturer for the installation method in end system.
2.4 Limited module procedures
Not applicable, this is a Single Modular
2.5 Trace antenna designs
Not applicable, the module has a PCB antenna
2.6 RF exposure considerations
The module can be used for mobile or portable applications with a maximum -2.65dBi antenna. The host manufacturer installing this module into their product must ensure that the final composit product complies with the FCC requirements by a technical assessment or evaluation to the FCC rules, including the transmitter operaition.

The host manufacturer 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.

2.7 Antennas

The module has a PCB antenna with max gain -2.65dBi

2.8 Label and compliance information

The final end product must be labeled in a visible area with the following" Contains FCC ID:2AATP-TP971.

2.9 Information on test modes and additional testing requirements

Host manufacturer must perfom test of radiated & conducted emission and spurious emission, etc according to the actual test modes for a stand-alone modular transmitter in a host, as well as for multiple simultaneously transmitting modules or other transmitters in a host product.

Only when all the test results of test modes comply with FCC requirements, then the end product can be sold legally.

2.10 Additional testing, Part 15 Subpart B disclaimer

The modular transmitter is only FCC authorized for FCC Part 15 Subpart C 15.247 & 15.209 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.

Documents / Resources

	ECARE TP972 Bluetooth Module [pdf] User Manual TP972 Bluetooth Module, TP972, Bluetooth Module, Module

References

- User Manual