

# GPR-BT-001 Manual



Version 0.1

**GUNPOWER**

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## Revision History

Revision	Date	Description	Director
Ver 0.1	2015-12-31	Draft	Sung-June Yoo
Ver 0.2	2016-05-20	Dimension Change	Sung-June Yoo

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## 1. General

### 1.1 Overview

This specification covers Bluetooth module (class-1) which complies with Bluetooth specification version 3.0 integrates RF & Baseband controller in small package. This Module has adopted CSR's BC04-External chipset. All detailed specification including pinouts and electrical specification may be changed without notice

Transmission speed : 1Mbps ~ 3Mbps

Transmission output : 1mW(10m, Class2), 100mW(100m Class1)

Network configuration : Master, it consists of a Slave relation is the number of a single device that can simultaneously connect up to two Bluetooth devices is seven (ACL-based).

Reliability : Frequency Hopping (FHSS: Frequency Hopping Spread Spectrum), using a technique ensures a stable wireless connection even in noisy environments Noise is.

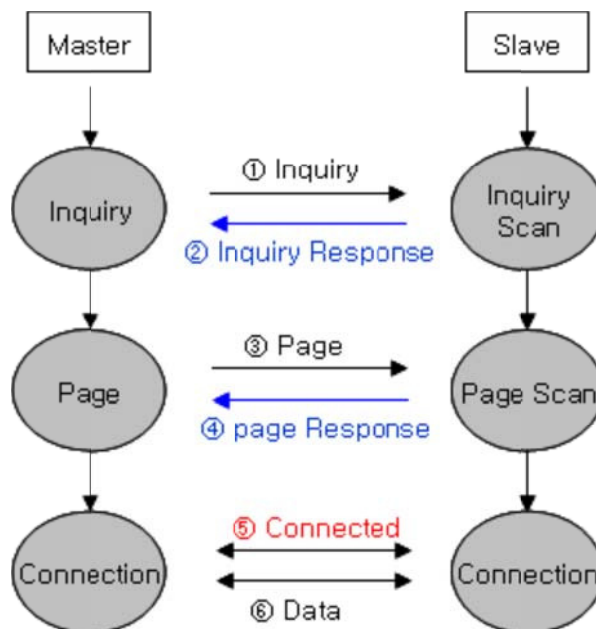
### 1.2 Feature

GPR-BT-001 is designed so that you can use to replace the previous RS232 Cable system with wireless communication system.

- Key Features .

- 1) Bluetooth Specification 2.1 Support.
- 2) 5 Pins SMD type is to be applied to the product's ease.
- 3) It supports the AT command can be controlled using AT commands FBS100BC.
- 4) It can be used to smoothly connect as Bluetooth PDA, Bluetooth USB Dongle.
- 5) Compact size provides the best in Class 2.
- 6) Simply Bluetooth firmware update function support.
- 7) Reliable data transmission reception.

## 1.3 Movement



< Figure 1. bluetooth movement >


Bluetooth is to operate in the role (ROLE) By default, the Master and the captain of the Slave. Typically Inquiry (search) and Page (connection request is referred to the end of the Master, Inquiry Scan (search standby) and Page Scan (Slave side that the connection is called the standby).

If you find a Slave and the Master (Inquiry), Slave must send their information to the Master (Inquiry Response).

When the information of Slave will agree with the Master, the interconnection will be achieved to transmit the data.

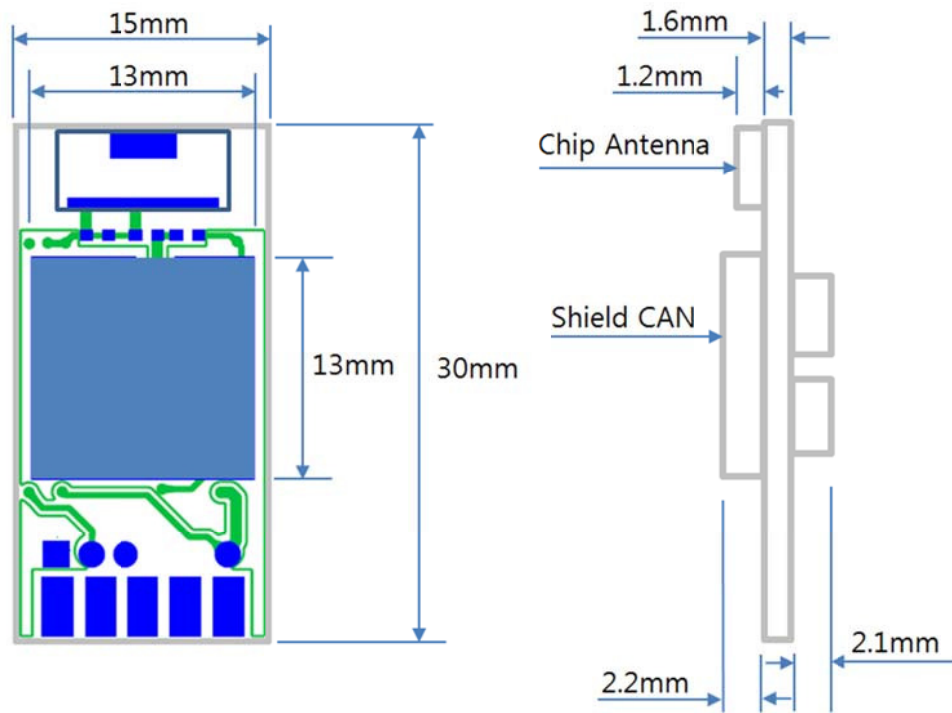
## 2. Configuration

### 2.1 Component

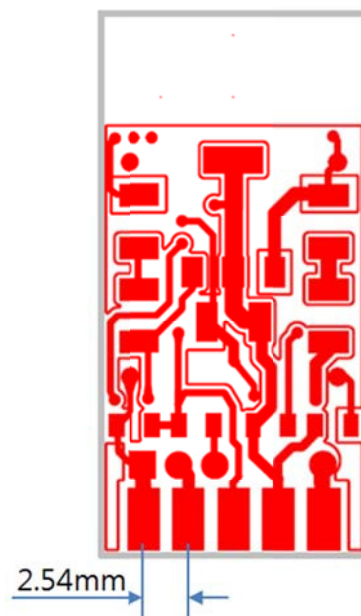
Product name	Figure	Quantity (EA)
<b>GPR-BT-001</b> <b>(ON-board Chip Antenna)</b>		<b>1 EA</b>

< Figure 2. GPR-BT-001 Component >

## 2.2 Dimension



TOP



BOTTOM

## 2.3 Pin Assign



1 2 3 4 5

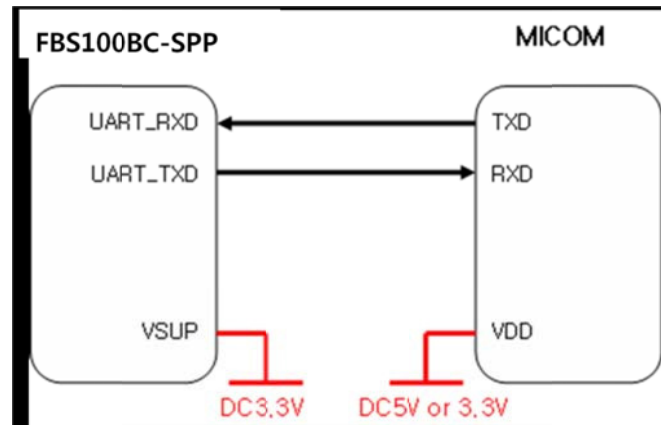
< Figure 3. GPR-BT-001 PIN Assign>

NO.	Pin name	Function	I/O redirection	Signal level
1	GND	Ground	-	-
2	TXD	Transfer Data (Data out)	Output	TTL
3	RXD	Received Data (Data in)	Input	TTL
4	VCC	3.3V	Input	-
5	VCC	7.2V	Input	-

< Table 4. GPR-BT-001 I/O redirection & Function >

### 3. Interface

- When it is not required of the flow control



< Figure 5. Connections that do not use flow control >

## 4. Specification

No.	Part		Specification
1	Bluetooth Spec.		Bluetooth Specification 2.1 Support
2	Communication distance		10 M
3	Frequency Range		2402 ~ 2480MHz ISM Band
4	Sensitivity		-83dBm (Typical)
5	Transmit Power		4dBm(Typical)
6	Size		30 x 15 x 5.95 mm
7	Support Bluetooth Profile		SPP (Serial Port Profile)
8	Input Power		3.3V
9	Current Consumption		42mA (Max)
10	Temperature	Operating	-10°C ~ 50°C
		Limit Operating	-35°C ~ 55°C
11	Communication Speed		1,200bps – 230,400bps
12	Antenna		Chip Antenna
13	Interface		UART (TTL Level)

< Table 6. Specification >

## 5. Current consumption

Status		Current consumption (mA)		
		Min	Max	Ave
Stand by		2	6	<b>4</b>
Search waiting (Slave)		2	41	<b>24</b>
Connection waiting (Slave)		2	7	<b>4</b>
Search (Master)		39	41	<b>40</b>
Connect	Slave	18	23	<b>20</b>
	Master	6	10	<b>7</b>
Transmit data	Slave	24	30	<b>28</b>
	Master	18	27	<b>21</b>
Reception data	Slave	21	33	<b>26</b>
	Master	21	33	<b>27</b>
Transmit & Reception data	Slave	27	33	<b>29</b>
	Master	21	33	<b>28</b>
Low power mode	Slave	0	6	<b>1</b>
	Master	1	9	<b>2</b>

< Figure 7. Current consumption >

## FCC Information to User

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 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.

\*The provisions of paragraphs (a) and (b) of this section do not apply to digital devices exempted from the technical standards under the provisions of § [15.103](#).

\*For systems incorporating several digital devices, the statement shown in paragraph (a) or (b) of this section needs to be contained only in the instruction manual for the main control unit.

\*In cases where the manual is provided only in a form other than paper, such as on a computer disk or over the Internet, the information required by this section may be included in the manual in that alternative form, provided the user can reasonably be expected to have the capability to access information in that form.

## Caution

Modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

**FCC Compliance Information :** 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

Including interference that may cause undesired operation. Modifications not expressly approved by the manufacturer could void the user's authority To operated the equipment under FCC rules. To satisfy FCC exterior labeling requirements, the following text must be placed on the exterior of the end product.

**Contains Transmitter Module FCC ID : 2AIHIGPR-BT-001**

**CAUTION :** This device and its antenna(s) must not be co-located or operated in conjunction with any other antenna or transmitter. End users cannot modify this transmitter device. Any unauthorized modification could void the user's authority to operate this device.

This module is limited to installation in mobile or fixed applications.

The OEM integrator is responsible for ensuring the end-user has no manual instruction to remove or install module.

In the event that the Host Manufacturer requires assistance in ensuring compliance with Part 15 subpart B, the Grantee will offer assistance

**IMPORTANT NOTE:**

**FCC RF Radiation Exposure Statement:**

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

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

- 1)The transmitter module may not be co-located with any other transmitter or antenna,
- 2)OEM shall not supply any tool or info to the end-user regarding to Regulatory Domain change.

As long as 2 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 OEM integrator is responsible for ensuring the end-user has no manual instruction to remove or install module.

**IMPORTANT NOTE:** In the event that these conditions can not 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 can not 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.

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.

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### **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.