E104-BT56 Series User Manual

BLE 5.3 UART-to-BLE Module



Chengdu Ebyte Electronic Technology Co.,Ltd.

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

Contents

Disclaimer and Copyright Notice 3
1 Overview 4
1.1 Introduction 4
1.2 Features and Functions 4
1.3 Application scenarios 4
2 Specifications 6
2.1 Product Selection Comparison 6
3 Mechanical Dimensions & Pin Definition 7
4 Basic Applications 8
4.1 Recommended circuit 8
5 Function Description 9
5.1 Character Description 9
5.2 Power Mode 10
5.3 Data Transmission Mode 10
5.4 broadcast 11
5.5 Configuration 12
5.6 Data Indication 12
5.7 UUID Explanation 12
5.8 Status or Event Printing 12
6 AT Commands 14
6.1 Instruction Description 14
6.2 Error code 14
6.3 Instruction list 15
7 Quick Use 34
7.1 Quick Start Guide for Configuration Mode 34
7.2 Data Transmission 36
7.3 OTA Upgrade 41
8 Frequently Asked Questions 43
8.1 Transmission distance is not ideal 43
8.2 Module is easily damaged 43
8.3 Too high error rate 43
9 Welding Operation Instructions 44
9.1 Reflow soldering temperature 44
9.2 Reflow Soldering Profile 44
10 Related Models 45
11 Bulk packaging method 46
Revision History 47
About us 47

Copyright © 2012–2024 , Chengdu E -Best Electronic Technology Co., Ltd.

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

Disclaimer and Copyright Notice

All information contained herein, including reference URLs, is subject to change without prior notice. This document is provided "as is" without any warranty of any kind, including warranties of merchantability, fitness for a specific purpose, or non-infringement, as well as any warranties implied by proposals, specifications or samples referenced elsewhere. The Company shall not be liable for any damages, including liability for patent infringement arising from the use of information contained in this document. No intellectual property license, whether express or implied by estoppel or otherwise, is granted herein.

All test data in this document are obtained from Ebyte's laboratory; actual test results may have minor deviations.

All trade names, trademarks and registered trademarks mentioned in this document are the property of their respective owners, hereby acknowledged.

This product is strictly prohibited for military applications and scenarios involving human life safety. The user shall bear full liability for any unauthorized violation of this regulation.

The Company reserves the right of final interpretation of this document.

Notice:

The contents of this manual may be revised due to product version upgrades or other reasons. Chengdu Ebyte Electronic Technology Co., Ltd. reserves the right to modify the contents of this manual without prior notification or reminder. This manual serves only as an operation guide. Although Chengdu Ebyte Electronic Technology Co., Ltd. has made every effort to ensure the accuracy of information within this manual, the Company does not warrant that the manual is completely error-free. All statements, information and recommendations contained herein shall not constitute any express or implied warranty.

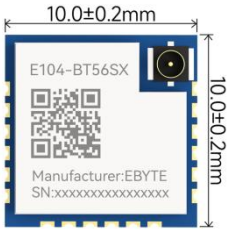
Copyright © 2012–2026 , Chengdu E -Best Electronic Technology Co., Ltd.

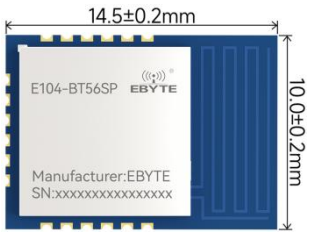
LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

1 Overview

1.1 Introduction

The E104-BT56 series is a UART-to-BLE module designed based on Bluetooth 5.3 protocol. It supports host, Slave, host-Slave Integrated, and Observer roles, with a maximum of 8 concurrent connections. It also supports low-power advertising, transparent data transmission, over-the-air configuration, and OTA firmware upgrade. It is applicable to smart wearables, home automation, smart home appliances, automotive electronics, lighting control, industrial internet, intelligent data acquisition, intelligent control and other fields.





1.2 Features and Functions

- Bluetooth BLE 5.3 protocol;
- Bluetooth bag length is adjustable;
- Supports two working modes: configuration and pass-through.
- Supports switching between IBeacon and regular broadcast ;
- Supports transparent serial port transmission and formatted transmission ;
- Bluetooth parameters can be configured over the air ;
- The maximum communication distance can reach 200m ;
- The host automatically reconnects, with a maximum of 8 reconnections.
- Supports multiple host and slave connections . In host mode, up to 8 slave devices can be connected, and in slave mode, up to 8 host devices can be connected. The host-slave integration supports arbitrary allocation of the number of host and slave connections, with a total of 8 connections and a minimum of 1 connection for either the host or slave device .
- Supports transmission power modification , with a maximum transmission power of 8 dBm ;
- Sniffing function;
- MTU maximum 24 4 bytes;
- OTA firmware upgrade;
- Supports PCB onboard antennas /3rd generation IPEX antennas.

1.3 Application scenarios

- Wireless meter reading and wireless sensing ;
- Smart home ;

Copyright © 2012–2026 , Chengdu E -Best Electronic Technology Co., Ltd.

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

- Industrial remote control and telemetry ;
- Smart buildings ;
- Automated data acquisition ;
- Smart wearable devices ;

Copyright © 2012–2026 , Chengdu E -Best Electronic Technology Co., Ltd.

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

2 Specifications

2.1 Product Selection Comparison

Product Model	E104-BT56SP	E104-BT56SX
Product display image		
Bluetooth standard	BLE5.3	BLE5.3
Operating frequency band	2402～2480MHz	2402～2480MHz
Transmit power	-47～8dBm	-47～8dBm
Transmission distance ①	150m	200m
Power supply voltage ②	1.8～3.6V	1.8～3.6V
Emission current ③	≈36mA	≈36mA
Received current ④	≈3.3mA	≈3.3mA
Dormant current ⑤	≈1.8 μ A	≈1.8 μ A
Wake-up broadcast current⑥	≈2.5mA	≈2.5mA
Dormant broadcast current⑦	≈21.5 μ A	≈21.5 μ A
Product Dimensions ⑧	10*14.5mm	10*10mm
Antenna type	Onboard PCB antenna	IPEX3 generation
Interface method	stamp perforation	stamp perforation
Operating temperature 9	-40～+85℃	-40～+85℃
Operating humidity	10~95%RH, no condensation	10~95%RH, no condensation
Storage temperature	-40℃～+125℃	-40℃～+125℃
Product weight ⑩	0.5g	0.4g

Note:

(1)Test conditions: Clear and open environment, antenna height 2m.

(2)Power supply voltage: 3.3V is recommended.

(3)Emission current: DC 3.3V power supply, instantaneous current.

(4)Received current: Average current when powered by DC 3.3V.

(5)Dormant current: Average current when supplied with DC 3.3V.

(6)Wake-up broadcast current: Power supply DC 3.3V, broadcast period 1000ms, average current.

(7)Sleep broadcast current: Power supply DC 3.3V, broadcast period 2000ms, average current.

(8)Product dimensions: tolerance is ±0.2mm. For detailed dimensions, please see Chapter 3 of this document .

(9)Operating temperature: Industrial grade standard.

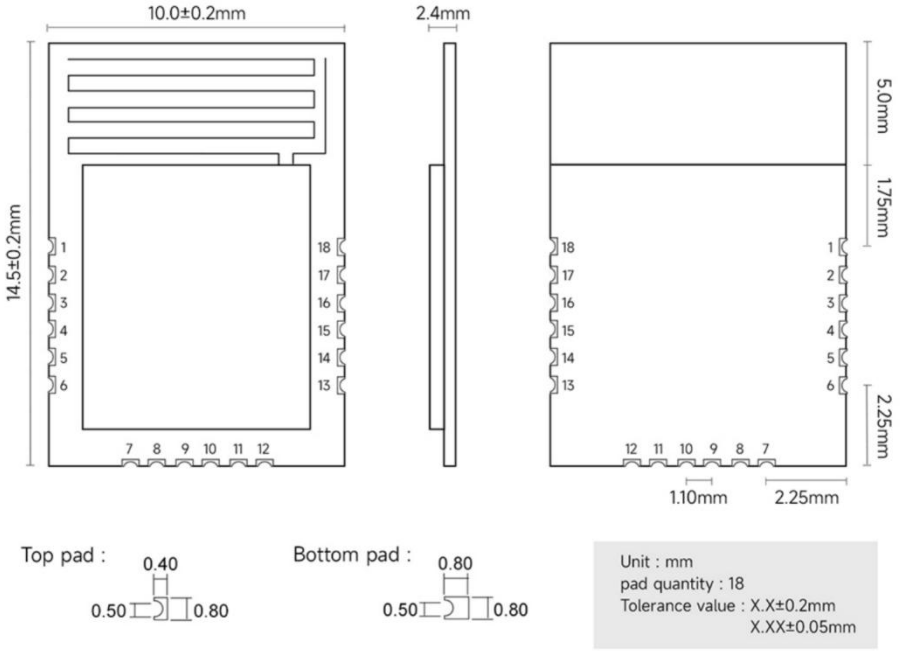
(10)Product weight: error is ±0.1g.

Copyright © 2012–2026 , Chengdu E -Best Electronic Technology Co., Ltd.

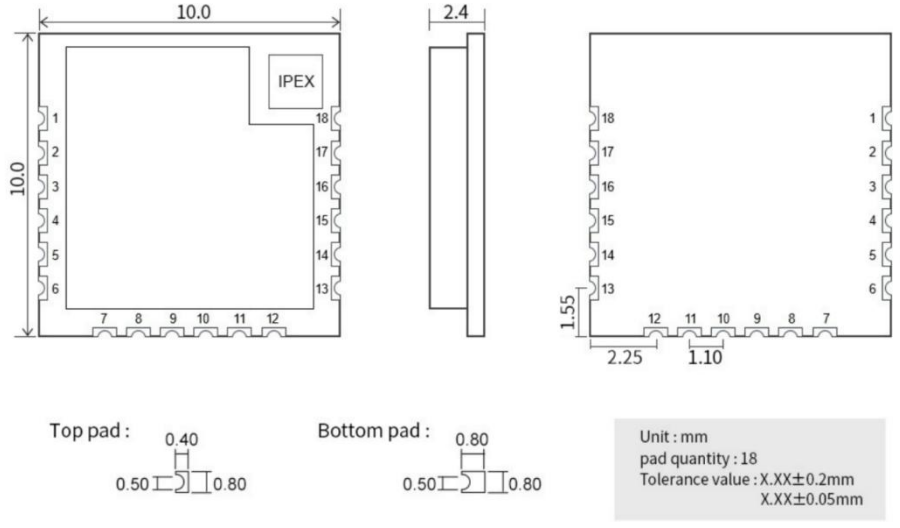
Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

3 Mechanical Dimensions & Pin Definition

E104- BT56SP:



E104- BT56SX:



Pin No.	Pin Name	Pin Direction	Description
1	GND	-	Power Ground
2	NC	-	No connection, leave floating
3	RESTORE	Input	Internal pull-up. Pull low for at least 5 seconds to restore all factory settings and auto-restart module
4	DATA	Output	Data output indication: A high-level signal is output upon receiving BLE data over the air; a low-level signal is output after the BLE data has been transmitted via serial port.
5	LINK	Output	Connection status indicator pin: high level indicates connection, low level indicates disconnection.
6	NC	-	No connection, leave floating

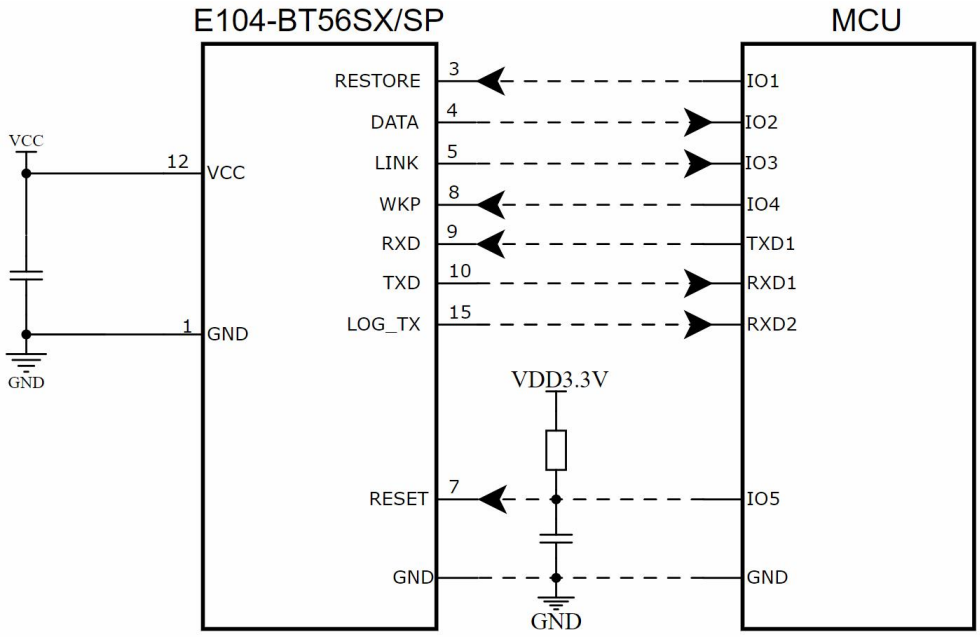
Copyright © 2012–2026 , Chengdu E -Best Electronic Technology Co., Ltd.

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

Pin No.	Pin Name	Pin Direction	Description
7	RESET	Input	Reset pin, low level reset
8	WKP	Input	The default low level indicates normal mode, during which serial communication is possible. Pulling it high enters sleep mode, preventing serial communication. (Edge triggered)
9	RXD	Input	Serial port input
10	TXD	Output	Serial port output
11	GND	-	power ground
12	VCC	Input	Positive power supply, 1.8V~3.6V, 3.3V power supply recommended.
13	NC	-	No connection, leave floating
14	NC	-	No connection, leave floating
15	LOG_TX	Output	Log serial port output is disabled by default; it can be left floating if not used.
16	NC	-	No connection, leave floating
17	NC	-	No connection, leave floating
18	GND	-	power ground

4 Basic Applications

4.1 Recommended circuit



Copyright © 2012–2026 , Chengdu E -Best Electronic Technology Co., Ltd.

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

5 Function Description

5.1 Character Description

The module supports four roles: host, slave, observer , and host-slave hybrid .

The host unit supports connection to other Bluetooth products from our company. When the module acts as a host, it can connect to up to 8 slave units ; when the module acts as a slave unit, it can be connected to up to 8 hosts; when the module functions as a host-slave hybrid, it can connect to 8 slave units or be connected to by 8 hosts . It supports transparent transmission and various format transmissions. Automatic reconnection is supported .

This module can connect to other Bluetooth products from our company and supports transparent transmission.

The observer is only used to broadcast information to BLE devices around the printing module and cannot be connected.

5.1.1 Host machine

1. Select the host role by setting AT+ROLE=1 and restart for the changes to take effect .
2. The command AT+SCAN =1,<time>,1 starts the host scanning to obtain the MAC address of the device to be connected ; AT+CONNECT=<mac> connects to the slave device.
3. It supports multi-host and multi-slave connections , with a maximum of 8 slave devices that can be connected .
4. Print status information when the host connection status changes. See Status Printing .

5.1.1.1 Host Connection Policy

Active connection: Connect to the device with the specified MAC address using the AT+CONNECT=<MAC> command.

Automatic connection: You need to set the reconnection list first using AT+AUTO_CNT=<enable>,<MAC>. The reconnection list supports a maximum of 8 entries, and one entry is added each time it is set .

5.1.2 Slave machine

1.AT+ROLE=0 selects slave mode

2.AT+ADV=1 configures the normal broadcast mode , which is enabled by default and requires no further configuration.

3.The broadcast switch is configured to be on. The device will automatically enter broadcast mode upon power-on; otherwise, the broadcast will be stopped and the device will not be detected.

4.For broadcast data configuration, please refer to section 5.5 Broadcast.

5.1.3 Observer Role

1. The command AT+ROLE=2 selects the observation mode (restart required for the changes to take effect).
2. Upon receiving the broadcast, print out the entire contents of the broadcast packet via the serial port.

Copyright © 2012–2026 , Chengdu E -Best Electronic Technology Co., Ltd.

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

3. The observer device cannot be connected to any device.

4. Observers can use AT+OBSFLT to set filters.

The format is as follows:

LEN	MAC	RSSI	Advdata
1 byte	6 bytes	1 byte	No more than 31 bytes

Chart 5.1 - Observer Data Output Format

Note: LEN stands for LEN, M AC, RSSI, the total length of broadcast data.

5. The scanning window and scanning gap are kept consistent with the scanning parameters.

6. AT commands are valid during this period.

5.2 Power Mode

The module supports two power modes: low power mode and wake-up mode.

5.2.1 Low power mode

Low-power mode refers to a mode in which the BLE function continues to operate while all peripherals except the wake-up pin are disabled. For even lower power consumption, broadcasting and scanning can be disabled via AT commands, all connections can be disconnected, and longer broadcast, scan, and connection intervals can be set.

Entering low power mode: Entering low power mode via the rising edge of the WKP pin;

Note: In low-power mode , serial port output is valid, but input is not.

5.2.2 Wake-up mode

The so-called wake-up mode refers to the mode in which the peripheral devices required by the module are in normal working condition.

Wake up immediately upon the falling edge of the WKP pin.

5.3 Data Transmission Mode

The module supports two data transmission modes: command transmission and transparent transmission . Transparent transmission includes two methods: data pass-through transmission and format transmission.

5.3.1 Command transmission

Data is sent via AT commands. AT+SEND=<conn_id>,<payload> sends data to the device with the specified connection ID.

5.3.2 Data pass-through

Data pass-through refers to sending data received from the serial port to the other device via BLE without any

Copyright © 2012–2026 , Chengdu E -Best Electronic Technology Co., Ltd.

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

processing, and sending data received via BLE out through the serial port without any processing.

AT+TRM_HANDLE= <conn_id> Enter data pass-through mode

5.3.3 format transmission

The term "format transmission" means that data sent to the module via the serial port and data transmitted by the module via the serial port must conform to a defined format for transmission.

Sending "AT+TRANMD=0" to the device via serial port switches the device to a different data transmission format. The data format is as follows :

Connection number	Valid data
1 byte	Max: 243 bytes
0~ 7	

- Slave device number: 0~ 7 is the object device number. This number comes from the connection number in " XX:XX:XX:XX:XX:XX CONNECTD C*Y " printed by the device after a successful connection .
- If the connection specified by the number does not exist, the module will discard the packet data directly.
- In this format, the receiving end will include the connection ID (conn_id) before the data to determine who sent it.
- Formatted transmission can communicate with unformatted transmission.

5.4 broadcast

5.4.1 General broadcast information

Broadcast messages include advertising and scan response . Advertising is a broadcast message sent proactively, while scan response is a broadcast message sent in response to a host scan request.

Advertising

Fixed fields	Len	Manufacturer field	Manufa data
020106	N	0xFF	Configurable, maximum 26 bytes
For example: 020106 < Len > FF < Manufa data >			

Chart 5.2 - Broadcast Data Format

Users can only configure the data in the Manufacturer data field.

Scan response

Len	fixed	UUID	Len	fixed	Device name
0x03	0x03	FFF0	N	0x09	Configurable, maximum 22 bytes
For example: 03 03 FFF0 <len> 09 <Device name>					

Chart 5.3 Scan Response - Data Format Table

Note: This data does not require user configuration.

5.4.2 iBeacon Broadcast Information

The commands configure UUID, Major, and Minor respectively.

The command AT+ADV=2 configures the system to operate in iBeacon broadcast mode, enabling immediate broadcasting.

Copyright © 2012–2026 , Chengdu E -Best Electronic Technology Co., Ltd.

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

Bluetooth connectivity is not supported in iBeacon broadcast mode.

Advertising

iBeacon Prefix	UUID	Major	Minor	Tx-Power
9B	16B	2B	2B	1B
For example: 020106 26 FF4C000215FDA FDA50693A4E24FB1AFCFC6EB07647825 2775 848F C9				

Chart 5.4 New iBeacon - Data Format Table

5.5 Configuration

The module supports two configuration methods: serial port configuration and over-the-air (OTA) configuration. These two methods are essentially the same. Before OTA configuration, a verification password of AT+AUTH=123456 must be used. Only after successful verification will the module allow OTA configuration. The OTA configuration authentication period is limited to the current connection; if the device is disconnected and reconnected, re-authentication is required.

If the module is not connected, it defaults to configuration mode. If the module is connected, you can enter configuration mode by sending "+++".

5.6 Data Indication

When the module outputs data via the serial port, it sets the DATA pin to a high level to indicate that data is being transmitted. AT command responses do not change the state of the DATA pin.

5.7 UUID Explanation

Service UUID	FFF0 (configurable)		
Eigenvalues	UUID	property	describe
SLAVE CHANNEL	FFF1 (configurable)	read / notify	The slave device sends data , and the host device receives data via a data transmission channel.
MAST CHANNEL	FFF2 (configurable)	read/write /wirte no response	The host sends data and the slave receives data via a channel.
CONFIG CHANNEL	FFF3 (non-configurable)	read / write / notify	Air-to-air access channels

5.8 Status or Event Printing

Status information includes: connected, disconnected, awake, and asleep. The format is as follows:

1. XX:XX:XX:XX:XX:XX CONNECTD P*X: Connection to the character was successful;
2. XX:XX:XX:XX:XX:XX DISCONNECTED P: Disconnect from the role;

Copyright © 2012–2026 , Chengdu E -Best Electronic Technology Co., Ltd.

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

3. XX:XX:XX:XX:XX:XX CONNECTD C*Y: Main character connection successful;
4. XX:XX:XX:XX:XX:XX DISCONNECTED C: The primary role has disconnected.

X and Y are the ID numbers assigned from the character and the main character respectively.

Copyright © 2012–2026 , Chengdu E -Best Electronic Technology Co., Ltd.

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

6 AT Commands

Note: Before sending operation commands, ensure that the module is in wake-up mode; otherwise, it will be unable to receive configuration commands.

6.1 Instruction Description

- All AT commands do not require a carriage return (\r) or a newline (\n).
- All AT commands are case-insensitive.
- The return value of an AT command ends with \r\n (except for HEX returns).
- Error response format: +ERR=[NUM]. (NUM stands for ACSI)

6.2 Error code

NUM	illustrate	Error reason	Solution
1	Parameter error	The parameter is empty or has an incorrect length. Parameter format error Parameter value out of range Parsing of fields such as MAC, UUID, and HEX failed.	Check the AT command parameter format, length, and value range.
2	Command type error or unknown command	AT command type not supported; No corresponding AT command found; Instruction prefix or format error	Check AT command table and command format
3	Status not allowed or resources busy	This operation is not supported for the current character. The connection does not exist or the status is not met. Scanning, connection, RF testing and other processes are busy	Confirm the current role, connection status, and business status before execution.
4	Permissions or capacity limits	Remote BLE configuration not authenticated; The filter list or auto-reconnect list is full; Exceeding the allowed	Complete the authentication process first, or clear existing list items and try again.

Copyright © 2012–2026 , Chengdu E -Best Electronic Technology Co., Ltd.

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

		capacity	
5	Execution failed	The underlying transmission failed; Storage failed; The underlying interface returned a failure.	Check BLE/UART transmit status, storage status, and underlying return values.

6.3 Instruction list

6.3.1 AT Test Commands

instruction	answer
AT	**OK**
Note: None	

6.3.2 AT +RESET Reset Command

instruction	answer
AT+RESET	**OK**
Note: Effective immediately	

6.3.3 AT +RESTORE factory reset command

instruction	answer
AT+RESTORE	**OK**
illustrate: 1、 After resetting, it will automatically restart; 2、 During the factory reset process, any form of resetting is prohibited, and power should not be cut off before the operation is completed.	

6.3.4 Use AT+VER to query the software version number

instruction		answer
Query	AT+VER?	+OK=[para]
set up	\	\
parameter	Para: Current software version number	
illustrate	Only the query function is supported.	
Example	Send: AT + VER ?	

Copyright © 2012–2026 , Chengdu E -Best Electronic Technology Co., Ltd.

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

	Return: +OK =7 560 - 0 -1 0

6.3.5 AT+BAUD Serial port baud rate

instruction		answer
Query	**AT+BAUD?**	**+OK=[para]**
set up	**AT+BAUD=[para]**	**OK: Success** **+ERR=[NUM]: Error**
parameter	para(ASCII)	Baud rate (bps)
	0	2400
	1	4800
	2	9600
	3	14400
	4	19200
	5	38400
	6	57600
	7	115200 (default)
	8	230400
	9	460800
	10	921600
illustrate	immediately , saves data even after power failure.	
Example	AT+BAUD= 7. Set the baud rate to 115200.	

6.3.6 AT +PARI Serial port check bit

instruction		answer
Query	**AT+PARI?**	**+OK=[para]**
set up	**AT+PARI=[para]**	**OK: Success** **+ERR=[NUM]: Error**
parameter	para(ASCII)	describe
	0	No verification (default)
	1	Odd parity
	2	Even parity
illustrate	immediately , saves data even after power failure.	
Example	AT+PARI=0	

Copyright © 2012–2026 , Chengdu E -Best Electronic Technology Co., Ltd.

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

6.3.7 AT +DATABIT S Serial port data bits

<table>
<tr><td colspan="2">instruction</td><td>answer</td></tr>
<tr><td>Query</td><td>AT+DATABITS?</td><td>+OK=[para]</td></tr>
<tr><td>set up</td><td>AT+DATABITS=[para]</td><td>OK: Success
+ERR=[NUM]: Error</td></tr>
<tr><td>parameter</td><td colspan="2"><table><tr><td>para(ASCII)</td><td>describe</td></tr><tr><td>0</td><td>7 data bits</td></tr><tr><td>1</td><td>8 data bits (default)</td></tr></table></td></tr>
<tr><td>illustrate</td><td colspan="2">immediately , saves data even after power failure.</td></tr>
<tr><td>Example</td><td colspan="2">AT+ DATADITS = 1</td></tr>
</table>

6.3.8 AT +ROLE Bluetooth character

<table>
<tr><td colspan="2">instruction</td><td>answer</td></tr>
<tr><td>Query</td><td>AT+ROLE?</td><td>+OK=[para]</td></tr>
<tr><td>set up</td><td>AT+ROLE = [para]</td><td>OK: Success
+ERR=[NUM]: Error</td></tr>
<tr><td>parameter</td><td colspan="2"><table><tr><td>Para(ASCII)</td><td>describe</td></tr><tr><td>0</td><td>Slave (default)</td></tr><tr><td>1</td><td>host</td></tr><tr><td>2</td><td>Observer</td></tr><tr><td>3</td><td>host and servant as one</td></tr></table></td></tr>
<tr><td>illustrate</td><td colspan="2">Restart for the changes to take effect; data is saved even after power failure.</td></tr>
</table>

6.3.9 AT +CONNUM host-Slave Integrated Allocation

<table>
<tr><td colspan="2">instruction</td><td>answer</td></tr>
<tr><td>Query</td><td>AT+CONNUM?</td><td>+OK=[para1],[para2]</td></tr>
<tr><td>set up</td><td>AT+CONNUM=[para1],[para2]</td><td>OK: Success
+ERR=[NUM]: Error</td></tr>
<tr><td>parameter</td><td colspan="2">para1: The maximum number of connections allowed on the host, ranging from 1 to 7, with a default of 7.
para2: The maximum number of slave connections, ranging from 1 to 7, with a default of 1.</td></tr>
<tr><td>illustrate</td><td colspan="2">1、 Restart for the changes to take effect. Saved after power failure.
2、 Only when role=3, can it be used in host-slave integrated mode;
3、 para1 + para2 = 8</td></tr>
<tr><td>Example</td><td colspan="2">Send: AT+CONNUM=4,4</td></tr>
</table>

Copyright © 2012–2026 , Chengdu E -Best Electronic Technology Co., Ltd.

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

	Return: +OK

6.3.10 AT +DEVMANUF Modify Manufacturer Name

instruction		answer
Query	**AT+DEVMANUF?**	**+OK=[para]**
set up	**AT+DEVMANUF =[para]**	**OK: Success** **+ERR=[NUM]: Error**
parameter	para(string): Manufacturer name Factory default: CDEBYTE;	
illustrate	4、 Restart for the changes to take effect; data is saved even after power failure. 5、 The maximum length of a string is 32 bytes. 6、 This is the modified value of the Manufacturer Name String (0x2A29) characteristic under the Device Information (0x180A) service.	

6.3.11 AT+ADV Broadcast Enable

instruction		answer
Query	**AT+ADV?**	**+OK=[para]**
set up	**AT+ADV=[para]**	**OK: Success** **+ERR=[NUM]: Error**
parameter	para(ASCII) / describe 0 / Turn off broadcast 1 / Normal broadcast (default) 2 / iBeacon Broadcast	
illustrate	1、 Effective immediately, saves data even after power failure; 2、 Supports broadcasting, either as a slave device or a host-slave hybrid system.	

6.3.12 AT+ADVDAT Broadcast data

instruction		answer
Query	**AT+ADVDAT?**	**+OK= [para1], [para2]**
set up	**AT+ADVDAT=[para 1] , [para 2]**	**OK: Success** **+ERR=[NUM]: Error**
parameter	p ara 1 : Data input format (0, ASCII; 1, HEX) Para2: Custom broadcast data, no longer than 26 bytes	
illustrate	1、 Effective immediately. Saved even after power failure; 2、 Slave or host-slave hybrid systems support broadcasting, and other roles can still be	

Copyright © 2012–2026 , Chengdu E -Best Electronic Technology Co., Ltd.

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

	configured;
Example	AT+ADVDAT=0,12345678

6.3.13 AT+ADVINTV Broadcast Interval

instruction		answer
Query	**AT+ADVINTV?**	**+OK=[para]**
set up	**AT+ADVINTV=[para]**	**OK: Success** **+ERR=[NUM]: Error**
parameter	para(ASCII): 20~10240 Default: 2 00 (200ms)	
illustrate	1、 Effective immediately (if broadcasting is not enabled, it will take effect on the next use), saves data after power failure. 2、 Slave or host-slave hybrid systems support broadcasting; other roles can still be configured.	
Example	**AT+ADVINTV=1000**	

6.3.14 AT+NAME Broadcast equipment name

instruction		answer
Query	AT+NAME?	**+OK=[para]**
set up	AT+NAME=[para]	**OK: Success** **+ERR=[NUM]: Error**
set up (Do not save)	AT+NAME1=[para]	
parameter	para(HEX): Broadcast device name, Broadcast name no more than 20 bytes Default: E104- BT56	
illustrate	Effective immediately, saves data even after power failure; Only slave devices are supported; other roles can still be configured.	

6.3.15 AT+IBCNUUID iBeacon UUID command

instruction		answer
Query	**AT+IBCNUUID?**	**+OK=[para1]**
set up	**AT+IBCNUUID=[para]**	**OK: Success** **+ERR=[NUM]: Error**
parameter	para(HEX): 1 28 -bit UUID	
illustrate	1、 Effective immediately (if broadcasting is not enabled, or if already connected, it will take effect next time), saves upon power failure; 2、 Slave or host-slave hybrid systems support broadcasting; other roles can still be configured.	

Copyright © 2012–2026 , Chengdu E -Best Electronic Technology Co., Ltd.

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

Example	Set the iBeacon UUID to "FDA50693A4E24FB1AFCFC6EB07647825" AT+IBCNUUID= FDA50693A4E24FB1AFCFC6EB07647825

6.3.16 AT+MAJOR iBeacon Major command

instruction		answer
Query	**AT+MAJOR?**	**+OK=[para]**
set up	**AT+MAJOR=[para]**	**OK: Success** **+ERR=[NUM]: Error**
parameter	para(ASCII): 0001-FFFF Default: 2775	
illustrate	1、 Effective immediately (if broadcasting is not enabled, or if already connected, it will take effect next time), saves upon power failure; 2、 Only slave devices support broadcasting; other roles can still be configured.	
Example	AT+MAJOR=2775	

6.3.17 AT+MINOR iBeacon Minor command

instruction		answer
Query	**AT+Minor?**	**+OK=[para]**
set up	**AT+Minor=[para]**	**OK: Success** **+ERR=[NUM]: Error**
parameter	para(ACSII): 0001-FFFF Default: 848F	
illustrate	1、 Effective immediately (if broadcasting is not enabled, or if already connected, it will take effect next time), saves upon power failure; 2、 Only slave devices support broadcasting; other roles can still be configured.	
Example	AT+MINOR=848F	

6.3.18 AT+IPWR Modify ibeacn tx_power

instruction		answer
Query	**AT+IPWR?**	**+OK=[para]**
set up	**AT+ IPWR = [para]**	**OK: Success** **+ERR=[NUM]: Error**
parameter	para(ASCII): -90~-10 Default: -55	
illustrate	1、 Effective immediately (if broadcasting is not enabled, or if already connected, it will take effect next time), saves upon power failure;	

Copyright © 2012–2026 , Chengdu E -Best Electronic Technology Co., Ltd.

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

	2、 Only slave devices support broadcasting; other roles can still be configured. 3、 RSSI value at a distance of 1m

6.3.19 AT+SCAN scanning

instruction		answer
implement	**AT+SCAN=[para 1] , [para 2] , [para 3]**	**OK** **[serial number] [xx:xx:xx:xx:xx:xx] [rssi]** **or** **OK** **[serial number] [xx:xx:xx:xx:xx:xx] [rssi][name]** **:success** **+ERR=[NUM]: Error**
parameter	[para1]: 0 stops scanning, 1 starts scanning [para2]: Scan timeout time, in seconds, range 1-65535 [para3]: 0 indicates no broadcast name is displayed, 1 indicates the broadcast name is displayed. response:	
illustrate	1、 Takes effect immediately, without saving configuration. 2、 This command only applies to the primary role (single primary or host-slave combination); 3、 Scanning will automatically stop when the number of devices reaches 20 or the scanning timeout period is reached.	
Example	Configure primary scanning parameters (start scanning, do not display Bluetooth name, scanning time 10 seconds). Command: AT+SCAN=1,10,0 Return: +OK	

6.3.20 AT+SCANINTV Scan gap

instruction		answer
Query	**AT+SCANINTV?**	**+OK=[para]**
set up	**AT+SCANINTV=[para]**	**OK: Success** **+ERR=[NUM]: Error**
parameter	para(ASCII): 20~6000 Default: 100	
illustrate	1. Effective immediately, saves data even after power failure. 2. The scanning gap is not smaller than the scanning window. 3. Slave device is not supported, but can still be configured.	
Example	AT+SCANINTV=120	

Copyright © 2012–2026 , Chengdu E -Best Electronic Technology Co., Ltd.

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

	Scan interval: 120 * 0.625 = 75ms

6.3.21 AT+SCANWND Scan window

instruction		answer
Query	**AT+SCANWND?**	**+OK=[para]**
set up	**AT+SCANWND=[para]**	**OK: Success** **+ERR=[NUM]: Error**
parameter	para(ASCII): 20~65535 Default: 80;	
illustrate	1. Effective immediately, saves data even after power failure. 2. The scanning gap is not smaller than the scanning window. 3. Slave device is not supported, but can still be configured.	
Example	AT+SCANWND= 8 0 The scan window is: 8 * 0.625 = 50 ms	

6.3.22 AT +CONINTV Connection Gap Configuration

instruction		answer
Query	**AT+CONINTV?**	**+OK=[para]**
set up	**AT+CONINTV =[para]**	**OK: Success** **+ERR=[NUM]: Error**
parameter	[para] (ASCII): Connection gap, value range 10~2500; Default value: 20ms	
illustrate	Effective immediately, saves upon power failure.	
Notice	1、 The connection timeout must be greater than the connection interval. 2、 The device will not accept or save incorrect parameters. 3、 Modifying the host connection gap is not recommended.	
Example	**AT+CONINTV=20** Connection gap 20ms	

6.3.23 AT+ TIMEOUT Connection timeout configuration

instruction		answer
Query	**AT+ TIMEOUT ?**	**+OK=[para]**
set up	**AT+ TIMEOUT = [para]**	**OK: Success** **+ERR=[NUM]: Error**
parameter	[para] (ASCII): Connection gap, value range 10 0 ~ 320 00;	

Copyright © 2012–2026 , Chengdu E -Best Electronic Technology Co., Ltd.

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

	Default value: 500 0ms
illustrate	If there is no interaction at the underlying layer of BLE after the set time, the connection will be broken. Effective immediately, saves upon power failure.
Example	**AT+ TIMEOUT = 5000**

6.3.24 AT+ CONNECT Connection instructions

instruction		answer
Query	**AT+ CONNECT ?**	**- In progress: +OK=CONNECTING,<MAC>** **- Connected: +OK=CONNECTED,<count>;<conn_id>,<MAC>;<conn_id>,<MAC>** **- Idle: +OK=IDLE**
set up	**AT+ CONNECT = <MAC>[,<timeout>]**	**OK** **XX:XX:XX:XX:XX:XX CONNECTD C*Y** **+ERR=[NUM]: Error**
parameter	Setting parameters: <MAC>: The MAC address of the device you need to connect to, in the format XX:XX:XX:XX:XX:XX ; <timeout> : Timeout period for a single connection Query parameters: <count> Number of connections already established <conn_id> Connection assigned ID <MAC> The MAC address of the connected device	
illustrate	1. The configuration command is only available in host or host-slave integrated mode. In host mode, a maximum of 8 slave devices can be connected. In host-slave integrated mode, a maximum of 8 slave devices can be connected. 2. The string "XX:XX:XX:XX:XX:XX CONNECTD C*Y" after a successful connection is the connection ID assigned. Subsequent data transmissions will require specifying this ID. 3. The slave device can also use AT+CONNECT? to query the connection status.	
Example	Query: AT+CONNECT? Return: : +OK=CONNECTED,2;0,30:AE:6C:AA:B8:6F;1,30:AE:B9:59:58:D6	
	Setting: AT+CONNECT=30:AE:B9:59:58:D6 Return: +OK 30:AE:B9:59:58:D6 CONNECTED C*1	

Copyright © 2012–2026 , Chengdu E -Best Electronic Technology Co., Ltd.

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

6.3.25 AT+DISCON Disconnect command

<table>
<tr><td colspan="2">instruction</td><td>answer</td></tr>
<tr><td>set up</td><td>AT+DISCON=[para]</td><td>OK: Success
+ERR=[NUM]: Error</td></tr>
<tr><td>parameter</td><td colspan="2"><table><tr><td>para(ASCII)</td><td>describe</td></tr><tr><td>0~ 7</td><td>Disconnect the specified connection</td></tr></table></td></tr>
<tr><td>illustrate</td><td colspan="2">1. Effective immediately.
2. If the connection specified by para is not established, return +ERROR=1.</td></tr>
</table>

6.3.26 +++ Enter AT command mode

instruction	answer
+++	**OK**
Note: Entering pass-through mode via AT+TRM_HANDLE=<conn_id> will return +ERROR=2 if the system is already in AT mode.	

6.3.27 AT + TRM_HANDLE Enter pass-through mode

<table>
<tr><td colspan="2">instruction</td><td>answer</td></tr>
<tr><td>set up</td><td>AT+TRM_HANDLE=[para]</td><td>OK: Success
+ERR=[NUM]: Error</td></tr>
<tr><td>parameter</td><td colspan="2"><table><tr><td>para(ASCII)</td><td>describe</td></tr><tr><td>0~ 7</td><td>Connection assigned ID</td></tr></table></td></tr>
<tr><td>illustrate</td><td colspan="2">1. Takes effect immediately , enters data pass-through mode.
2. This needs to be used after BLE connection. If no connection is found for the current conn_id, it returns +ERROR=3.</td></tr>
</table>

6.3.28 AT+ SEND Send data

instruction		answer
implement	**AT+ SEND=<conn_id>,<payload>**	**OK, successful.** **+ERR=[NUM]: Error**

Copyright © 2012–2026 , Chengdu E -Best Electronic Technology Co., Ltd.

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

parameter	<conn_id>: The ID of the connection assignment. <payload>: The data to be sent
illustrate	1、In AT mode, received data will be printed as +DATA=<conn_id>,<len>,<data>. In pass-through mode, the data will be printed directly. 2、The maximum length of an entire AT command is 512 bytes. Data should be kept within 244 bytes (MTU-3 bytes) if possible. If the data exceeds 244 bytes, the BLE will be sent in packets.
Example	Execution: AT+SEND=0,1234567890 Return: OK

6.3.29 AT+ AUTO_CNT Automatic reconnection

instruction		answer
Query	**AT+ AUTO_CNT ?**	**+AUTO_CNT:** **<enable>, <mac>** **...** **<enable>, <mac>** **OK** **+ERR=[NUM]: Error**
set up	**Add or set automatic reconnection** **AT+ AUTO_CNT=<enable>,<mac>** **Configure whether all devices in the reconnection list automatically reconnect.** **AT+AUTO_CNT=<eanble>**	**OK** **XX:XX:XX:XX:XX:XX CONNECTD C*Y** **+ERR=[NUM]: Error**
parameter	Setting parameters: <enable>: Whether to enable automatic reconnection <mac>: The MAC address of the device you need to connect to, in the format XX:XX:XX:XX:XX:XX ;	
illustrate	1. The setting command is only available in host or host-slave mode. In host mode, a maximum of 8 slave devices can be connected. In host-slave mode, a maximum of 8 slave devices can be connected. This command sets one MAC address at a time. If you need to add multiple devices, execute the command multiple times. 2. The string "XX:XX:XX:XX:XX:XX CONNECTD C*Y" after a successful connection is the connection ID assigned. Subsequent data transmissions will require specifying the ID. 3. When setting the MAC address using the parameters AT+AUTO_CNT=<enable> and <mac>, if the MAC address is not stored, it will be added to the reconnection list. At the same time, it will check whether <enable> is 1 and enabled. If enabled, a connection will be initiated at the same time. If disabled, it will only be added to the reconnection list.	

Copyright © 2012–2026 , Chengdu E -Best Electronic Technology Co., Ltd.

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

	4. When using the single parameter setting AT+AUTO_CNT=<enable>, the enable of all devices in the reconnection list will be turned on or off. 5. Take effect immediately, restart and save.
Example	Query: AT+ AUTO_CNT ? Return: +AUTO_CNT: 0,30:AE:B9:59:58:D6 0,30:AE:6C:AA:B8:6F OK
	Settings: AT+AUTO_CNT= 1 ,30:AE:6C:AA:B8:6F return: OK 30:AE:6C:AA:B8:6F CONNECTED C*1

6.3.30 AT+ DEV_DEL Delete automatic reconnection

instruction		answer
set up	**Delete a single Mac** **AT+DEV_DEL=<mac>** **Delete all devices that automatically reconnect.** **AT+DEV_DEL=ALL**	**OK** **+ERR=[NUM]: Error**
parameter	Setting parameters: <mac>: The MAC address of the device to be deleted, in the format XX:XX:XX:XX:XX:XX.	
illustrate	Take effect immediately, restart and save.	
Example	Setting: AT+ DEV_DEL = 30:AE:6C:AA:B8:6F Return: +OK	

6.3.31 AT+ OBSFLT Add observer filter

instruction		answer
Query	**AT+ OBSFLT ?**	**+AUTO_CNT:** **<mac>** **...** **<mac>** **OK** **+ERR=[NUM]: Error**
set up	**AT+ OBSFLT=<mac>**	**OK**

Copyright © 2012–2026 , Chengdu E -Best Electronic Technology Co., Ltd.

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

parameter	<mac>: The MAC address of the device to be added to the filter list, in the format XX:XX:XX:XX:XX:XX ;
illustrate	1、After setting the filter list, the observer mode only outputs broadcast data for the MAC addresses in the filter list, with the output data format as described in section 5.1.3. 2、The observer filter list is added one at a time and can be repeated. 3、Effective immediately, restart to take effect
Example	Query: AT+ OBSFLT ? Return: +AUTO_CNT: 0,30:AE:B9:59:58:D6 0,30:AE:6C:AA:B8:6F OK
	Setting: AT+OBSFLT=30:AE:6C:AA:B8:6F return: OK

6.3.32 AT+ OBSFLT_DEL Remove observer filtering

instruction		answer
set up	**Delete a single Mac** **AT+OBSFLT_DEL=<mac>** **Delete all filter lists** **AT+OBSFLT_DEL=ALL**	**OK** **+ERR=[NUM]: Error**
parameter	<mac>: The MAC address of the device to be deleted, in the format XX:XX:XX:XX:XX:XX.	
illustrate	Take effect immediately, restart and save.	
Example	Settings: AT+ OBSFLT_DEL =30:AE:6C:AA:B8:6F Return: +OK Setting: AT+OBSFLT_DEL=ALL //Delete all filter lists Return: +OK	

6.3.33 AT +MAC Local MAC address

instruction		answer
Query	**AT+MAC?**	**+OK= [para]**
set up	**AT+MAC=[mac]**	**OK, successful.** **+ERR=[NUM]: Error**
parameter	**MAC address** : A 6-byte MAC address; supports the following two input methods. AT+MAC=<XXXXXXXXXXXX> AT+MAC=<XX:XX:XX:XX:XX:XX>	

Copyright © 2012–2026 , Chengdu E -Best Electronic Technology Co., Ltd.

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

illustrate	1. Takes effect immediately, saves data even after power failure. 2. Restore default parameters. This parameter will not change.
Example	Query: AT+MAC? Return: +OK=30AE92BD59D6
	Setting: AT+MAC=112233445566 Return: +OK

6.3.34 AT+TRANMD Transmission Mode

instruction		answer
Query	**AT+TRANMD?**	**+OK=[para]**
Query	**AT+ TRANMD =[para]**	**OK: Success** **+ERR=[NUM]: Error**
parameter	para(ASCII) / describe 0 / Format transmission 1 / Pass-through (default)	
illustrate	1、 Effective immediately. Saved upon power failure. 2、 This takes effect after AT+TRM_HANDLE=<conn_id> is entered into transparent transmission, with transparent output by default and a one-to-one connection. When AT+TRANMD is set to 0, it enables formatted transmission, where one byte of the hex data represents the conn_id of the connected device. Example: (hex) 00 31 32 33 sends hex data 0x31 0x32 0x33 to the device with connection ID 0. The connection ID is automatically assigned during connection.	

6.3.35 AT+UUIDSVR128 Set service 128-bit UUID

instruction		answer
Query	**AT+UUIDSVR128?**	**+OK=[para] ,[mode]**
set up	**AT+ UUIDSVR128=[para]**	**OK: Success** **+ERR=[NUM]: Error**
parameter	para:1 28 -bit UUID. mode (ASCII) / describe 0 / 16-bit UUID mode 1 / 128-bit UUID mode	
illustrate	1、 Restart to take effect; save after power failure. 2、 The second and third bytes are 16-bit UUIDs, with values ranging from 1 to 65535. 3、 This 128-bit UUID, except for the 2nd and 3rd bytes, is also used as the basic UUID for slave channels, host channels, and configuration channels. (For more information on UUIDs, please	

Copyright © 2012–2026 , Chengdu E -Best Electronic Technology Co., Ltd.

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

	refer to " BLUETOTH SPECIFICATION Version 5.0 | Vol 3, Part B 2.5.1 UUID "). 4、 Due to the endianness of UUIDs, the 2nd and 3rd bytes mentioned above are counted from the end to the beginning; for example, if the UUID is FB349B5F8000008000100000F0FF0000, its 16th byte is F0FF. 5、 When querying, it will display whether it is a 128-bit or 16-bit UUID. The default is a 16-bit UUID. When you use AT+UUIDSVR128 to set it, the mode changes to 1, and the current UUID is 128-bit. You can use AT+UUIDMODE to switch between 16-bit and 128-bit.
Example	Set 128-bit UUID: "11 22 33 44 55 66 77 88 99 00 aa bb cc dd ee ff" (HEX) AT commands are: AT+UUIDSVR128=11223344556677889900AABBCCDDEEFF Return: +OK Query 128-bit UUID: AT+UUIDSVR128? Return : +OK=11223344556677889900AABBCCDDEEFF,mode=1

6.3.36 AT+UUID MODE UUID mode

instruction		answer
Query	**AT+UUID MODE ?**	**+OK=[para]**
set up	**AT+UUID MODE =[para]**	**OK: Success** **+ERR=[NUM]: Error**
parameter	mode (ASCII) / describe 0 / 16-bit UUID mode (default) 1 / 128-bit UUID mode	
illustrate	1. Effective immediately . Saved even after power failure. 2. Default 16-bit UUID	
Example	Query: AT+UUIDMODE? Return: +OK=1 Setting: AT+UUIDMODE=1 Return: +OK	

6.3.37 AT+UUIDSVR Bluetooth service UUID

instruction		answer
Query	**AT+UUIDSVR?**	**+OK=[para]**
set up	**AT+UUIDSVR=[para]**	**OK: Success** **+ERR=[NUM]: Error**
parameter	para:0 000 -FFFF Default: FFF0	

Copyright © 2012–2026 , Chengdu E -Best Electronic Technology Co., Ltd.

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

illustrate	1. Restart for the changes to take effect. Power off and save data. 2. For the host, the service UUID is a necessary condition for connection filtering, so the host service UUID must be consistent with that of the slave device, otherwise a connection cannot be established.
Example	Query: AT+UUIDSVR? Return: +OK=F0FF Setting: AT+UUIDSVR=F0FF Return: +OK

6.3.38 AT+UUIDSLAVE SLAVE CHANNEL Feature UUID

instruction		answer
Query	**AT+UUIDSLAVE?**	**+OK=[para]**
set up	**AT+UUIDSLAVE=[para]**	**OK: Success** **+ERR=[NUM]: Error**
parameter	para: 000 0-FFFF Default: FFF1	
illustrate	1、 Reboot for the changes to take effect. Save data after power failure. 2、 Slave channel. Used for slave devices to send data and host devices to receive data.	
Example	Query: AT+UUIDSLAVE? Return: +OK=F1FF Setting: AT+UUIDSLAVE=F1FF Return: +OK	

6.3.39 AT+UUIDMAST MAST CHANNEL Feature UUID Command

instruction		answer
Query	**AT+UUIDMAST?**	**+OK=[para]**
set up	**AT+UUIDMAST=[para]**	**OK: Success** **+ERR=[NUM]: Error**
parameter	para: 0 000 -FFFF; Default: FFF2	
illustrate	1、 Reboot for the changes to take effect. Save data after power failure. 2、 host channel. The host sends data, and the slave receives data.	
Example	Query: AT+UUIDMAST? Return: +OK=F2FF Setting: AT+UUIDMAST=F2FF Return: +OK	

Copyright © 2012–2026 , Chengdu E -Best Electronic Technology Co., Ltd.

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

6.3.40 AT+AUTH Over-the-Air Authentication Password

instruction		answer
set up	**AT+AUTH =[para]**	**OK: Success** **+ERR=[NUM]: Error**
parameter	3、 para(HEX): 6-byte password	
illustrate	4、 This instruction is only used for over-the-air authentication. 5、 Default password: 123456	
Example	6、 AT+AUTH=123456	

6.3.41 AT+ UPAUTH Change over-the-air authentication password

instruction		answer
Query	**AT+UPAUTH ?**	**+OK=[para]**
set up	**AT+UPAUTH =[para]**	**OK: Success** **+ERR=[NUM]: Error**
parameter	para(HEX): 6-byte password	
illustrate	Effective immediately. Power off data retention.	

6.3.42 AT+LOGMSG Running status output

instruction		answer
Query	**AT+LOGMSG?**	**+OK=[para]**
set up	**AT+LOGMSG =[para]**	**OK: Success** **+ERR=[NUM]: Error**
parameter	para(ASCII) / describe 0 / Off (default) 1 / Open	
illustrate	1. Takes effect immediately, saves upon power failure. 2. Output via LOG_TX (pin 15). Enabling this will affect the communication rate and increase latency. It is generally not enabled and should only be used to troubleshoot abnormal situations.	

Copyright © 2012–2026 , Chengdu E -Best Electronic Technology Co., Ltd.

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

6.3.43 AT+PWR Transmit power

instruction		answer
Query	**AT+PWR?**	**+OK=[para]**
set up	**AT+PWR =[para]**	**OK: Success** **+ERR=[NUM]: Error**
parameter	**para(** ASCII **)**	**val**
	0	8 dBm (default)
	1	6 dBm
	2	3 dBm
	3	0 dBm
	4	-5 dBm
	5	-9 dBm
	6	-18 dBm
	7	-47 dBm
illustrate	immediately , saves data even after power failure.	
Example	AT+PWR=0	

6.3.44 AT+MTU Setting Bluetooth Single Packet Length

instruction		answer
Query	AT+MTU?	+OK=[para]
set up	AT+ MTU = [para]	OK: Success +ERR=[NUM]: Error
parameter	Para MTU value. Minimum 23, maximum 24 .	
illustrate	1. Takes effect immediately , saves data even after power failure. 2. Due to the presence of control bytes, when MTU = 247 is set, only 244 bytes can actually be sent per packet .	

6.3.45 AT+ DATADLY sets the DATA pin to advance the output time.

instruction		answer
Query	AT+ DATADLY?	+OK=[para]
set up	AT+ DATADLY = [para]	OK: Success +ERR=[NUM]: Error
parameter	[para] DATA pin indicates the time before serial port output, with a value range of <0-10>, in milliseconds.	
illustrate	1、Effective immediately, saves data after power failure. 2、Due to system scheduling issues, the DATA pin outputs approximately 1ms ahead of the serial	

Copyright © 2012–2026 , Chengdu E -Best Electronic Technology Co., Ltd.

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

	port by default; normally, no setting is needed, and the default value of 0 is sufficient. 3、Setting this parameter will affect communication latency; serial port data will be output with a delay of the set time.

Copyright © 2012–2026 , Chengdu E -Best Electronic Technology Co., Ltd.

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

7 Quick Use

Recommended software for debugging/testing:

- PC-side serial port tool - XCOM.exe;
- Mobile BLE debugging app - nRF Connect.

7.1 Quick Start Guide for Configuration Mode

7.1.1 Serial Port Configuration

- Configure the XCOM string (default configuration: 115200, 8, 1, none, no stream empty), as shown in the image below :



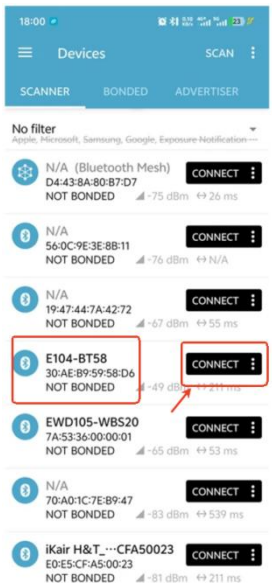
- Configure the module according to the instructions shown in the at instruction table . The instructions cannot contain \r\n carriage return and newline characters, otherwise they cannot be recognized correctly .

7.1.2 Airborne configuration

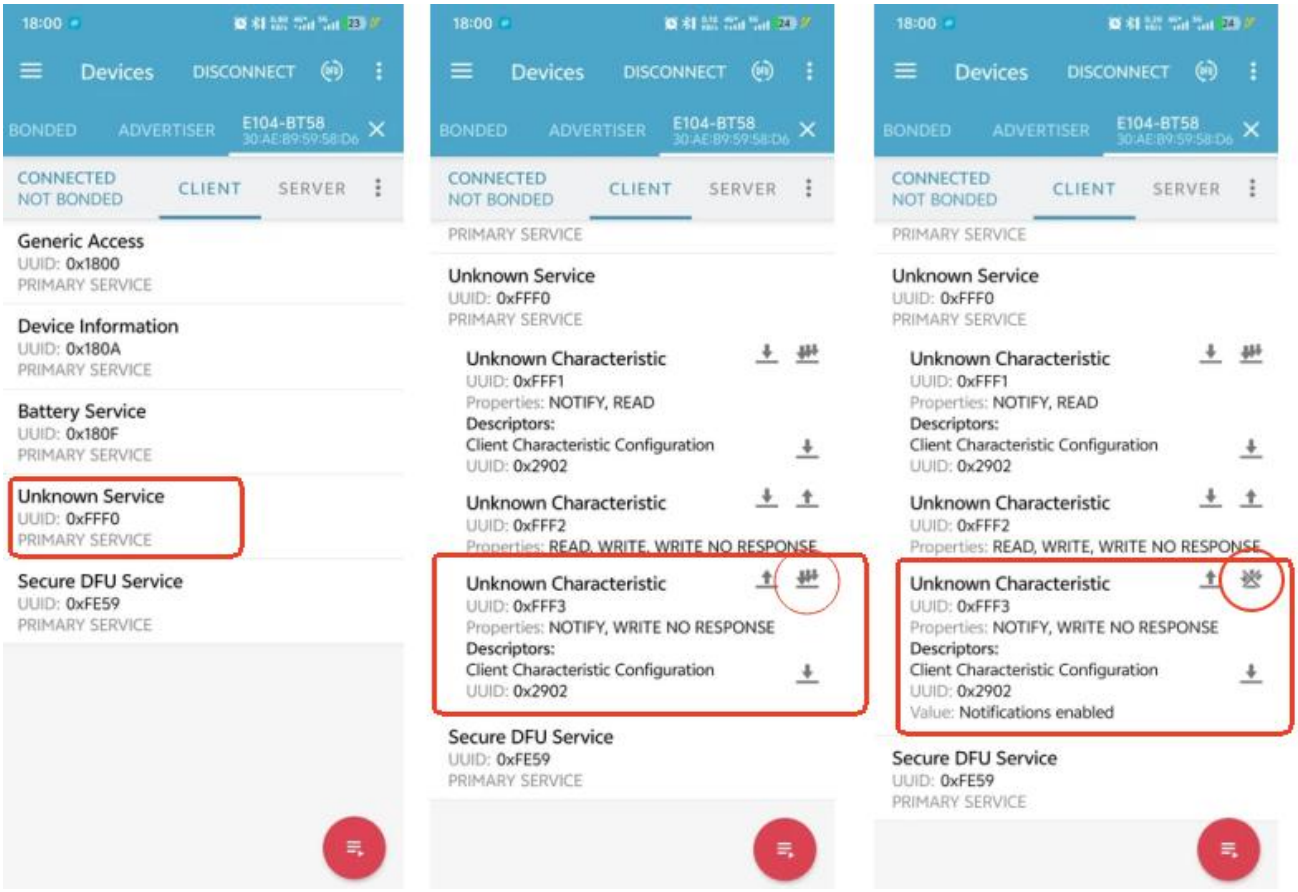
- Over-the-air configuration is available only when the module is a slave.
- Open the “nRF connect” app, start scanning for devices, and locate the “E104- BT56 ” connection module;

Copyright © 2012–2026 , Chengdu E -Best Electronic Technology Co., Ltd.

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000



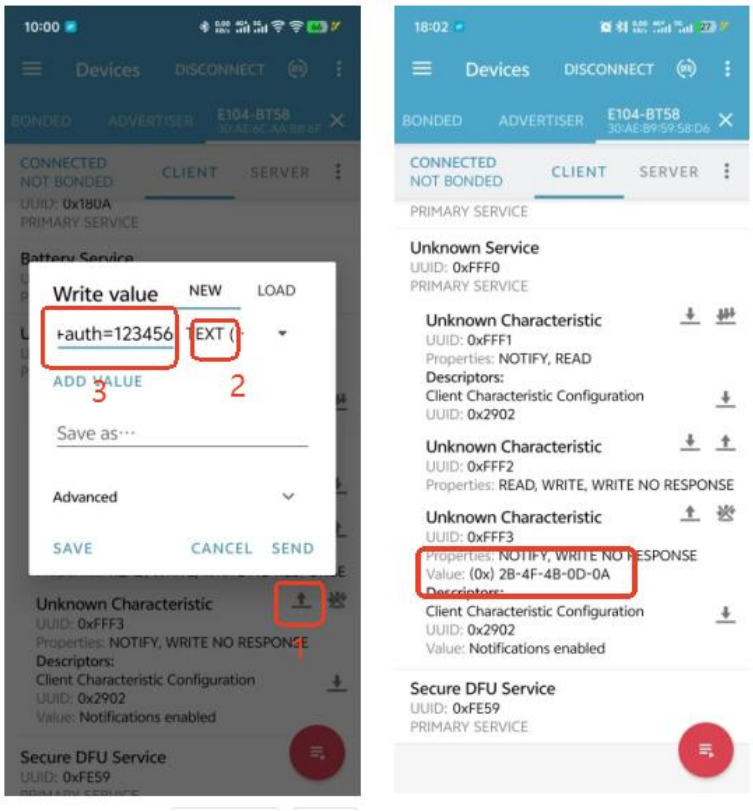
➢ Enable the UUID service (FFF0) and configure the channel (notiy).



Copyright © 2012–2026 , Chengdu E -Best Electronic Technology Co., Ltd.

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

- Send the authentication command (at+auth=12345 6) and select the TEXT format . The module returns " 0x2 b4f4b 0d0a " to indicate successful authentication.



- the instruction table in section 6.4 ;

7.2 Data Transmission

For instructions related to data transmission, please refer to section 5.3, Data Transmission Mode .

Test conditions:

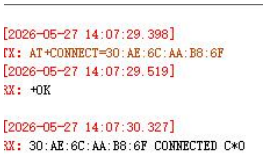
- Configure one module as the host and one module as the slave, as described in the Quick Start Guide for AT Command Table Configuration Mode .
- Test software: XCOM.
- Other parameters are set to default.

7.2.1 Data Transmission

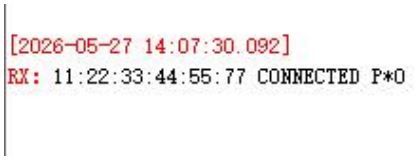
1. Module powered on;
2. The host module connects to the slave module via AT+CONNECT=<MAC>. Upon successful connection, both the host and slave modules will print. The LINK pin is set to high .
3. After the host unit successfully connects, it prints "XX:XX:XX:XX:XX:XX CONNECTD C*Y: host connection successful"; the slave unit prints "XX:XX:XX:XX:XX:XX CONNECTD P*Y: host connection successful ". The LINK pin is high. As shown in the figure , the host and slave units are successfully connected .

Copyright © 2012–2026 , Chengdu E -Best Electronic Technology Co., Ltd.

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000



Host serial port print information



Print information from the slave window

4. To enter transparent transmission mode, both the host and slave devices input AT+TRM_HANDLE=0. If there are multiple connections, the parameter in AT+TRM_HANDLE is the number printed by CONNECTED when connecting.
5. The host sends the data "0123456789" to the slave, and the slave receives the data as "0123456789".
6. The slave device sends the data "abcdefghijk" to the host device, and the host device receives the data as "abcdefghijk".



host

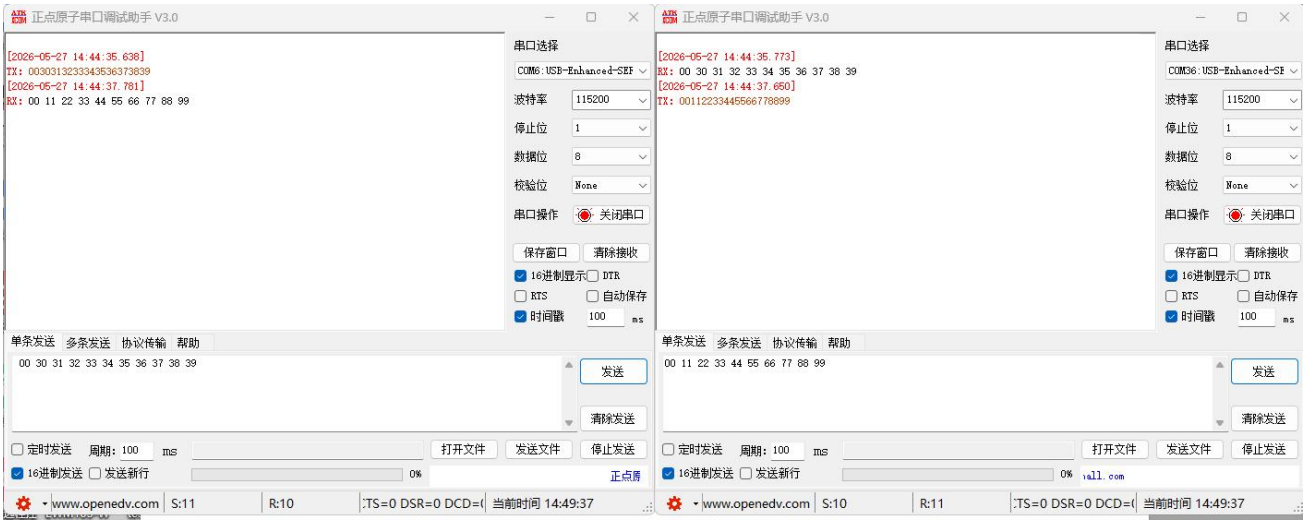


slave machine

7.2.2 Format Transmission

1. Same as steps 1 , 2, and 3 of data pass-through in 7.2.1 , connecting the host and slave sides ;
2. Set to format transmission (default format transmission, setting command "AT+TRANMD=0") ;
3. Same as step 4 of data pass-through in 7.2.1 , send AT+TRM_HANDLE=0 to enter pass-through mode ;
4. 0 123456789" (ASCII) to the slave . The data is transmitted in HEX format: "00 30 31 32 33 34 35 36 37 38 39".

The slave then receives the data " 0 123456789" (" 00 30 31 32 33 34 35 36 37 38 39") , as shown in the diagram below:



Copyright © 2012–2026 , Chengdu E -Best Electronic Technology Co., Ltd.

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

Host / Slave

5. The slave device sends the data "11 22 33 44 55 66 77 88 99" (hex) to the host device. The host device receives the data as " 00 11 22 33 44 55 66 77 88 99" (HEX). If formatted transmission is enabled, the first byte is the sent IDX. The host and slave devices can use different transmission modes, but the input must meet the transmission rules.

6. The host transmits data in a formatted manner, while the slave transmits it transparently. The host sends valid data " 0 123456789" (ASCII) to the slave. The formatted data is packaged as "00 30 31 32 33 34 35 36 37 38 39" (HEX). The slave then receives data as " 0 123456789" ("30 31 32 33 34 35 36 37 38 39").



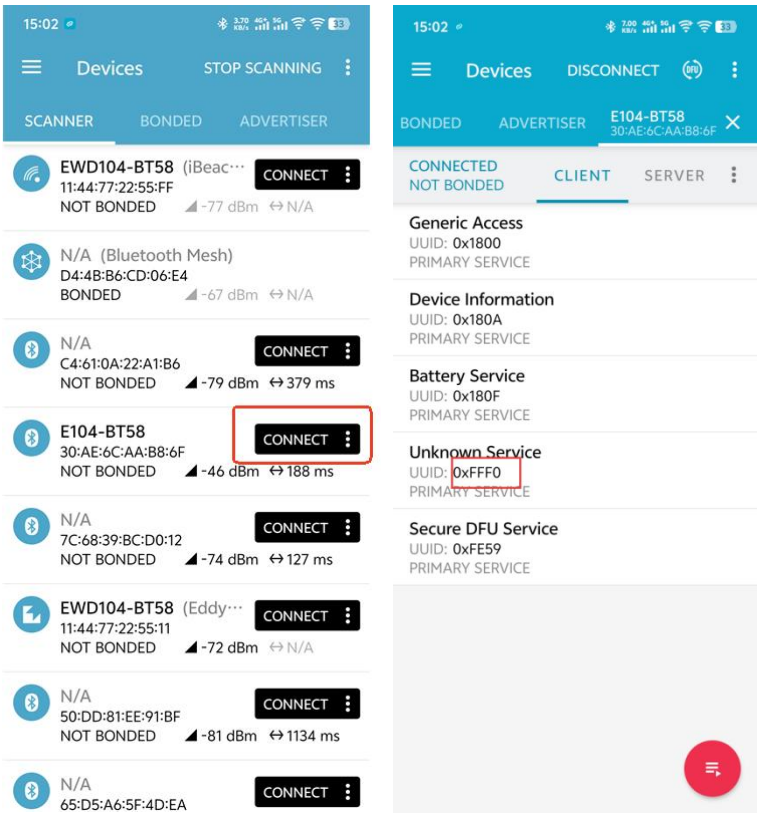
Host / Slave

7.2.3 Transmitting Data Between Mobile Phones and Modules

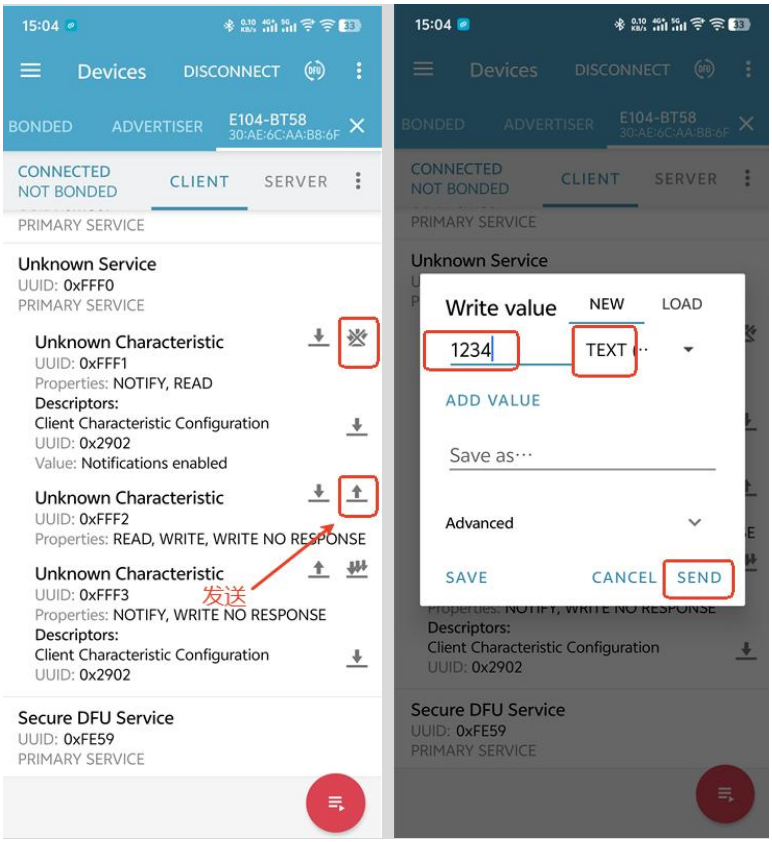
- When the mobile phone and the module transmit data, the module can only act as a slave or a host-slave hybrid.
- Open NRF Connect (or another mobile Bluetooth debugging assistant), search for E104-BT56 and connect;

Copyright © 2012–2026 , Chengdu E -Best Electronic Technology Co., Ltd.

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000



➢ Select the FFF0 service, enable the notify feature of FFF1, and send the data 1234 through the FFF2 sending channel (the upward arrow).

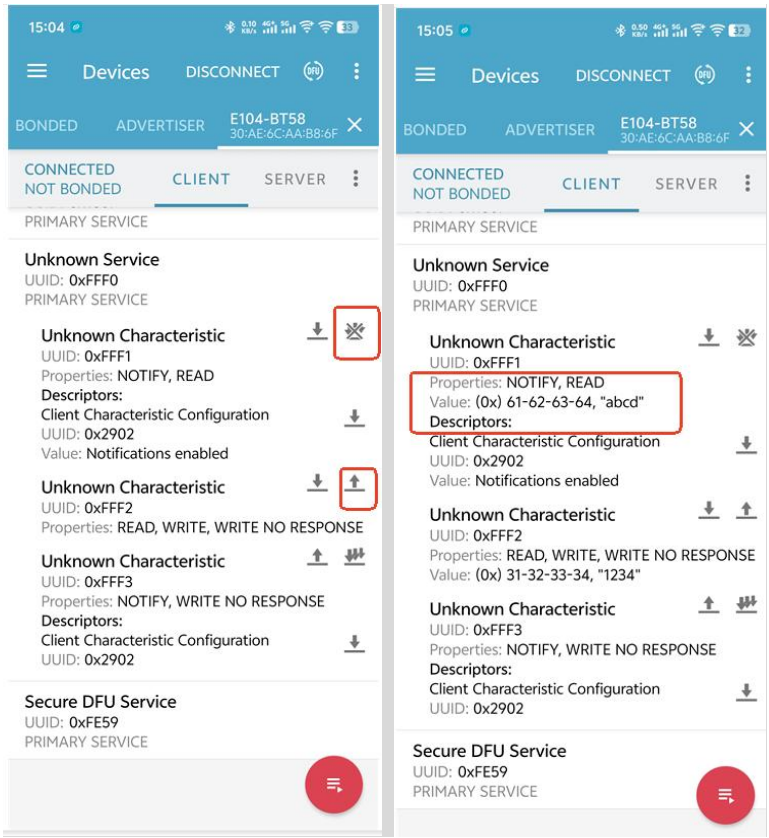


Copyright © 2012–2026 , Chengdu E -Best Electronic Technology Co., Ltd.

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

- If the module is not in transparent transmission state, it will receive +DATA=0,4,1234; after sending AT+TRM_HANDLE=0 to enter transparent transmission, it will send data again and the module will receive data 1234; the module will send data adcd, and the notify function of the FFF1 feature of the FFF0 service in nrf connect will receive data abcd.



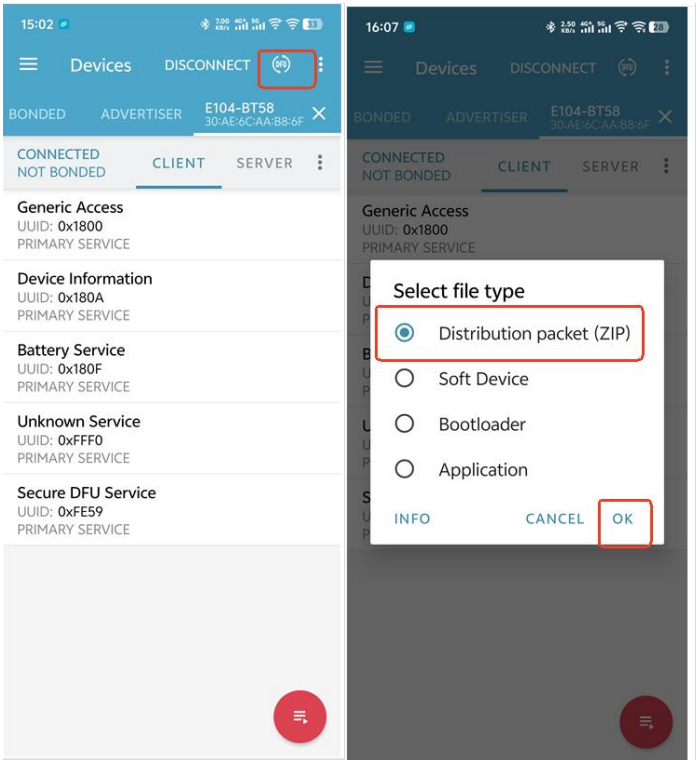


Copyright © 2012–2026 , Chengdu E -Best Electronic Technology Co., Ltd.

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

7.3 OTA Upgrade

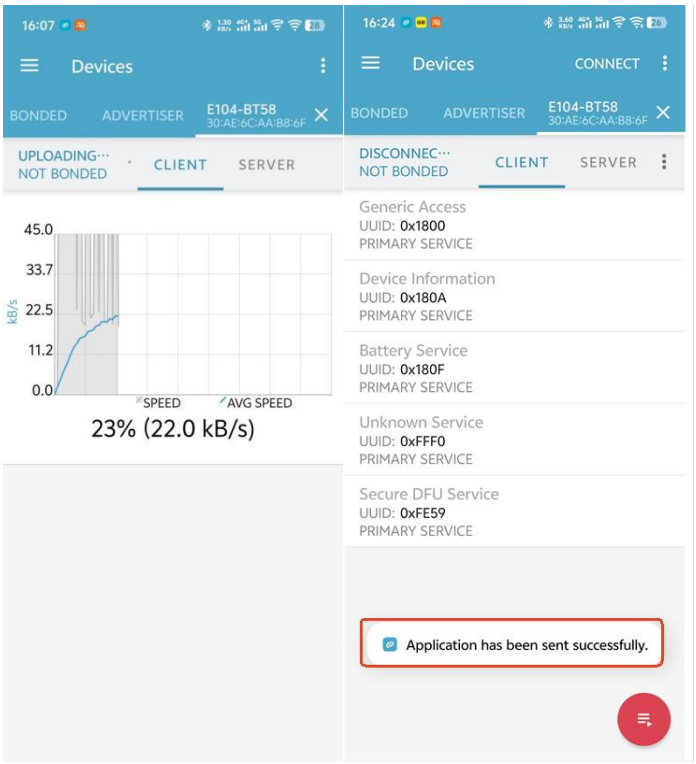
- OTA is only available in slave and host-slave integrated modes. Open the NRF Connect software, search for the module, and connect. Click the DFU icon in the upper right corner. Select Distribution Packet (ZIP), click OK, select the upgrade package from the phone's folder, and confirm to start the OTA upgrade.



- After the upgrade is complete, it will display "Application has been sent successfully". Wait about 10 seconds for the module to restart and the upgrade will be complete.

Copyright © 2012–2026 , Chengdu E -Best Electronic Technology Co., Ltd.

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000



Copyright © 2012–2026 , Chengdu E -Best Electronic Technology Co., Ltd.

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

8 Frequently Asked Questions

8.1 Transmission distance is not ideal

- When there are obstacles in line-of-sight communication, the communication distance will be reduced accordingly ;
- Temperature, humidity, and co-channel interference can all lead to increased packet loss rates in communications .
- The ground absorbs and reflects radio waves, and the test results are poor when the ground is close to the ground .
- Seawater has a strong ability to absorb radio waves, so testing results are poor at the seaside .
- If there are metal objects near the antenna, or if it is placed inside a metal casing, the signal attenuation will be very severe .
- Power register settings are incorrect; air speed is set too high (the higher the air speed, the shorter the distance) .
- At room temperature, the power supply voltage is lower than the recommended value; the lower the voltage, the lower the power output .
- The antenna may be poorly matched with the module or have quality issues.

8.2 Module is easily damaged .

- Please check the power supply and ensure it is within the recommended voltage range. Exceeding the maximum value will cause permanent damage to the module .
- Please check the power supply stability; the voltage should not fluctuate significantly or frequently .
- Please ensure anti-static operation during installation and use, as high-frequency devices are sensitive to electrostatic discharge .
- Please ensure that the humidity is not too high during installation and use, as some components are humidity-sensitive .
- Unless there are special requirements, it is not recommended to use it at excessively high or low temperatures.

8.3 Too high error rate

- If there is interference from a co-channel signal nearby, move away from the source of interference or change the frequency or channel to avoid the interference.
- An inadequate power supply can also cause garbled characters, so it is essential to ensure the reliability of the power supply.
- Poor quality or excessive length of extension lines or feeders can also lead to a high bit error rate.

Copyright © 2012–2026 , Chengdu E -Best Electronic Technology Co., Ltd.

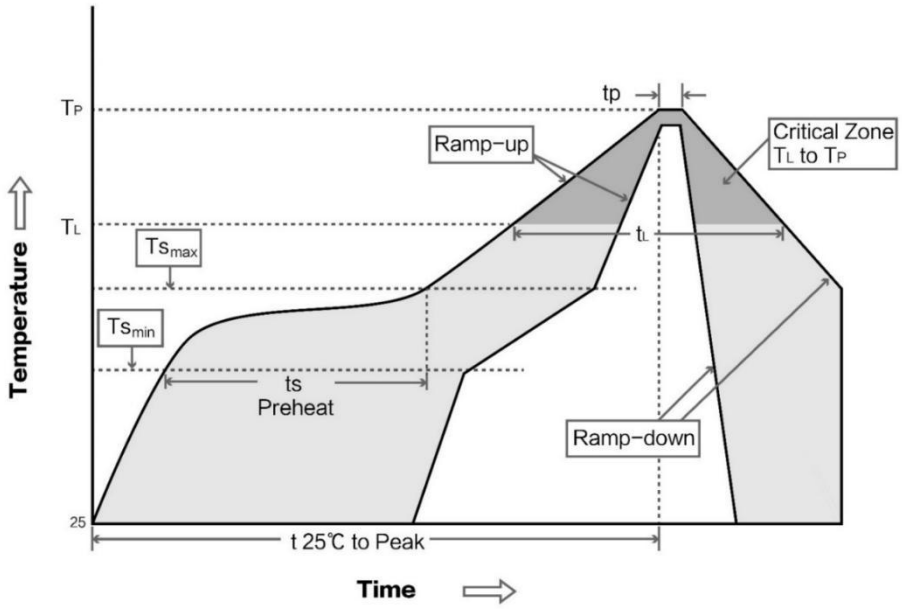
Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

9 Welding Operation Instructions

9.1 Reflow soldering temperature

Profile Feature	Curve characteristics	Sn-Pb Assembly	Pb-Free Assembly
Solder Paste	Solder paste	Sn63/Pb37	Sn96.5/Ag3/Cu0.5
Preheat Temperature min (Tsmin)	Minimum preheating temperature	100 ℃	150 ℃
Preheat temperature max (Tsmax)	Maximum preheating temperature	150 ℃	200 ℃
Preheat Time (Tsmin to Tsmax)(ts)	preheating time	60-120 sec	60-120 sec
Average ramp-up rate(Tsmax to Tp)	Average rate of ascent	3 ℃ /second max	3 ℃ /second max
Liquidous Temperature (TL)	Liquid phase temperature	183 ℃	217 ℃
Time(tL)Maintained Above(TL)	Time above the liquidus line	60-90 sec	30-90 sec
Peak temperature (Tp)	Peak temperature	220-235 ℃	230-250 ℃
Aveage ramp-down rate（Tp to Tsmax）	Average rate of descent	6 ℃ /second max	6 ℃ /second max
Time 25 ℃ to peak temperature	from 25 ℃ to peak temperature	6 minutes max	8 minutes max

9.2 Reflow Soldering Profile



Copyright © 2012–2026 , Chengdu E -Best Electronic Technology Co., Ltd.

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

10 Related Models

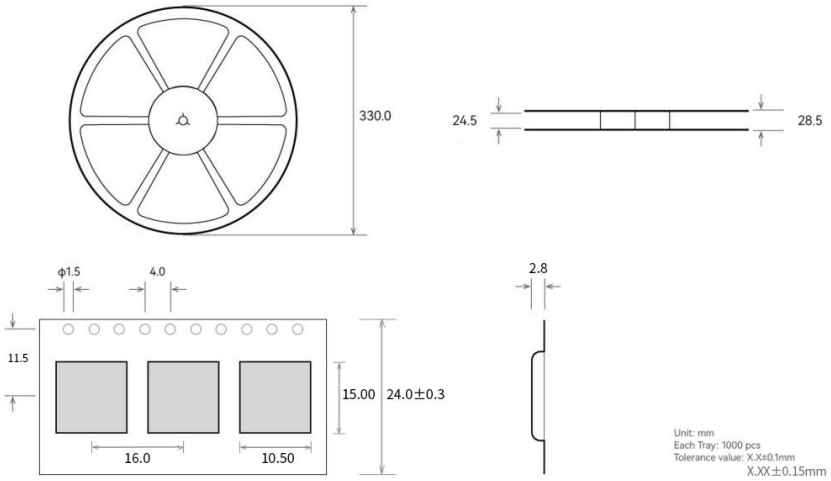
Product Model	Chip solutions	Operating frequency Hz	emission power dBm	Communication interface	Support Protocol BLE	Product Dimensions mm	antenna form	Features
E72-2G4M05S1B	CC2640	2.4G	5	I/O	4.2	17.5*28.7	PCB/IPX	Hardware resources Secondary development
E73-2G4M04S1A	nRF52810	2.4G	4	I/O	4.2/5.0	17.5*28.7	PCB/IPX	Hardware resources Secondary development
E73-2G4M04S1B	nRF52832	2.4G	4	I/O	4.2/5.0	17.5*28.7	PCB/IPX	Hardware resources Secondary development
E73-2G4M08S1C	nRF52840	2.4G	8	I/O	4.2/5.0	13*18	PCB/IPX	Hardware resources Secondary development
E73-2G4M04S1D	nRF51822	2.4G	4	I/O	4.2	17.5*28.7	PCB/IPX	Hardware resources Secondary development
E104-BT02	DA14580	2.4G	0	TTL	4.2	14*22	PCB	Industry's lowest power consumption
E72-2G4M04S2B	CC2640	2.4G	2	TTL	4.2	14*23	PCB/IPX	Built-in ARM dual-core Multi-role mode
E104-BT5010A	nRF52810	2.4G	0	UART	5.0	11.5 * 16	Ceramic antenna	Low power consumption, transparent transmission

Copyright © 2012–2026 , Chengdu E -Best Electronic Technology Co., Ltd.

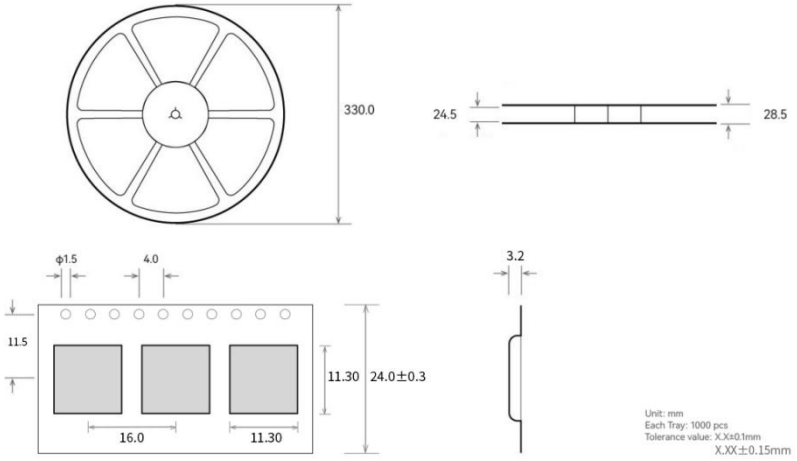
LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

11 Bulk packaging method

E104-BT56SP



E104-BT56SX



Copyright © 2012–2026 , Chengdu E -Best Electronic Technology Co., Ltd.

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

Revision History

Version	Revision Date	Revision Notes	maintainer
1.0	2026-06-23	first edition	Bin
1.1	2026-07-24	Content revision	Bin

About us

Hotline:4000-330-990

Technical support: support@cdebyte.com

Documents and RF Setting download link: https://www.cdebyte.com

Thank you for using Ebyte products! Please contact us with any questions or suggestions: info@cdebyte.com

Address: B5 Mould Park, 199# Xiqu Ave, High-tech District, Sichuan, China

Chengdu Ebyte Electronic Technology Co.,Ltd.

Copyright © 2012–2026 , Chengdu E -Best Electronic Technology Co., Ltd.

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000