Bluetooth module BK3254 manual

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http://shop110280715.taobao.com

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1. **BK3254**

BK3254 link: https://item.taobao.com/item.htm?id=38976506080

Adapter Boards Links: http://item.taobao.com/item.htm?id=43753521366
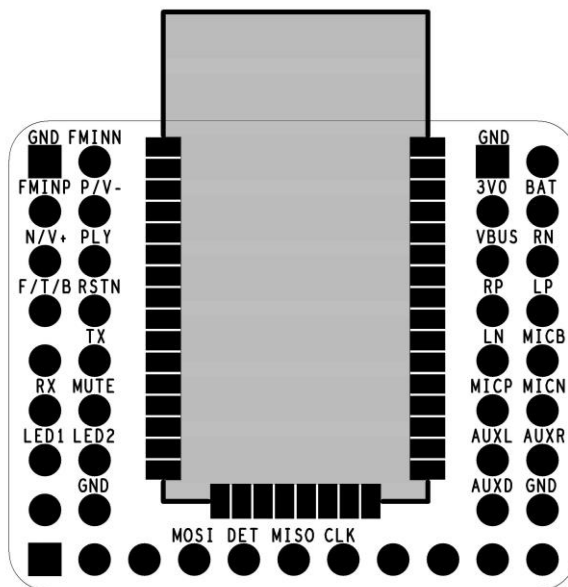

Map 1.1 BK3254 Advertising map
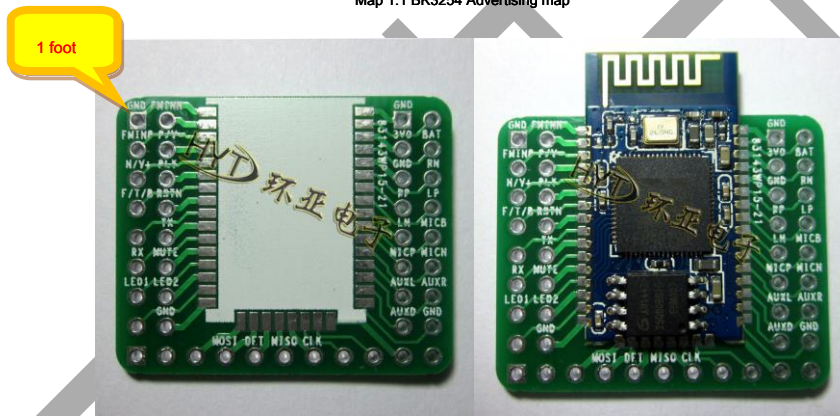
Map 1.2 BK3254 Adapter plate (2.4x3.1cm)

Map 1.3 BK3254 Pin definitions

1.1 Module Description

This module uses the master Beken (Broadcom) of BK3254 Chip module provides a high sound quality and compatibility, superior overall performance. Bluetooth module uses driver-free way, customers just need to block access to applications, you can quickly achieve wireless transmission of music, enjoy wireless music, It supports both buttons and AT Serial command control. Support Smart Chinese Speech Tip; Integration SD / TF Player, MP3 / WMA / WAV Music formats; Support U Disk player, internal support LINE-IN Internal support FM Radio, support for infrared remote control. Can be stored 6 A paired device, the module automatically switched back to the last connected device pairing. in case 6 Paired devices simultaneously opened, the device automatically connects the last pairing .

stand by AT Modify Bluetooth name, 16 Characters or less, see AT Instructions.

1.2 Applications

The module is mainly used for short distance transmission of music, you can easily and notebook computers, mobile phones, PDA And other digital products connected to Bluetooth devices, wireless transmission of music.

1) Bluetooth stereo speakers;

2) Stereo Bluetooth headset;

3) Bluetooth phone;

4) Bluetooth control and multimedia equipment.

1.3 Basic characteristics

1) Bluetooth v4.1 + EDR ;

2) A2DP v1.2 ;

3) AVRCP v1.0 ;

4) HFP v1.5 ;

5) GAVDP1.2 ;

6) HSP1.2 ;

1.4 Performance parameters

model	BK3254
Bluetooth Specification	Bluetooth V4.1
Supply voltage	DC2.8-4.2V , ≤ 2.9V Automatic shutdown, ≤ 3.1V Call the police
Bluetooth protocol support	HFPV1.5 , A2DPV1.2 , AVRCPV1.4 , HSP1.2 , GAVDP1.2
Working current	≤ 45mA
Standby Current	<500uA
temperature range	-40ºC ~ + 85ºC
Wireless transmission range	≤ 10 Meters
transmit power	Class2 4dbm
Sensitivity	-80dBm <0.1% BER
Frequency Range	2.402GHz ~ 2.480GHz
External Interface	Serial (TTL Level), and PC Connection requires conversion level, such as CH340G , USB turn TTL
Audio Performance	SBC decoding
Audio signal to noise ratio	≥ 75dB
Module size	25x13.5x1.8mm
Size adapter plate 24x29mm	

1.5 **Module size**

Pad size: 1.6x0.8mm
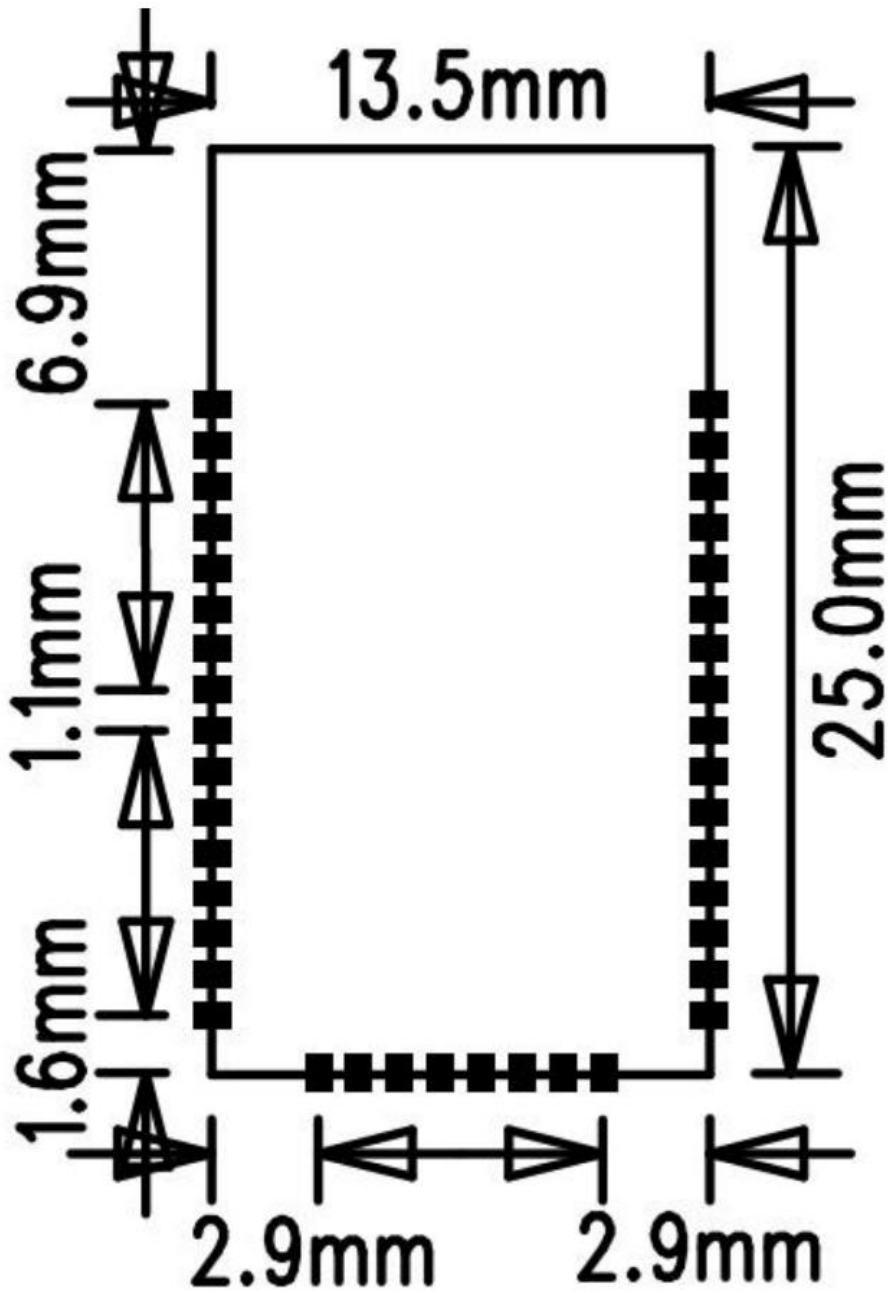
Map 1.4 BK3254 Dimensions

1.6 **IO definition**

```
 1 ── GND#1        BK3254           GND#4 ── 40
 2 ── FMINN                         ADC   ── 39
 3 ── FMINP     MODULE_BK3254       V3OUT ── 38
 4 ── PREV/VOL-(GPIO19)             VBAT  ── 37
 5 ── NEXT/VOL+(GPIO18)             VCCIO ── 36
 6 ── P.P/CALL(GPIO21)            AUDIORN ── 35
 7 ── FM/TF/BT(GPIO20)            AUDIORP ── 34
 8 ── RSTN                        AUDIOLP ── 33
 9 ── GPIO6                       AUDIOLN ── 32
10 ── TX(GPIO0)                      VMIC ── 31
11 ── RX(GPIO1)                     MICIP ── 30
12 ── MUTE(GPIO9)                      NC ── 29
13 ── LED1(GPIO15)                 AUX_L ── 28
14 ── LED2(GPIO17)                 AUX_R ── 27
15 ── GPIO16           AUX_DET(GPIO11) ── 26
16 ── GND#2                        GND#3 ── 25
```

GPIO10 · SD_CMD(GPIO13) · GPIO5 · SD_DAT(GPIO14) · SD_CLK(GPIO12) · USB_P(GPIO2) · USB_N(GPIO3) · GPIO22

17 18 19 20 21 22 23 24
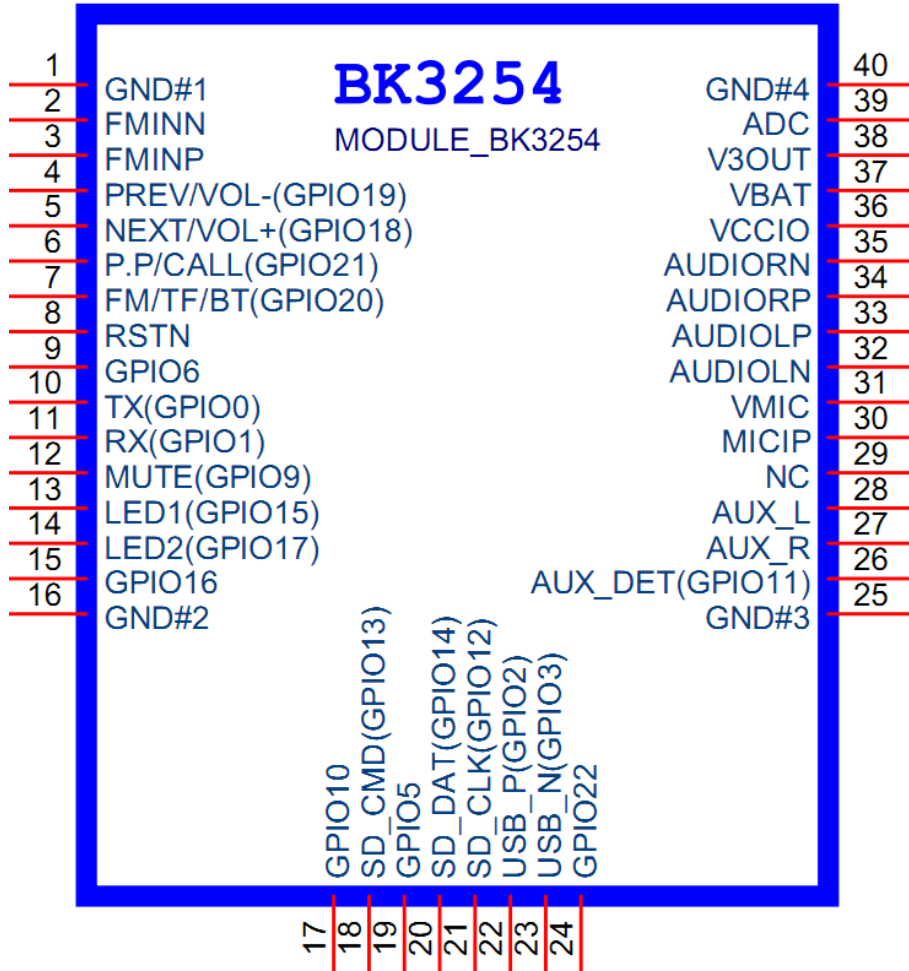
Map 1.5 BK3254 Pin definitions

IO Numbering	IO name	IO description
	Bluetooth module BK3254 manual	
1	GND	The antenna _
2	FMINN	FM The negative terminal of the antenna
3	FMINP	FM The positive terminal of the antenna
4	PREV / VOL- (TMS)	Click on the one / long press volume down
5	NEXT / VOL + (TCK)	Click the Next / long press the volume increase
6	PP / CALL (TDO)	Play / Pause / Take hang / releases / re-pair
7	CHG_MODE (TDI)	BT / FM / TF / U plate/ AUX Mode switch
8	RSTN	Reset (active low)
9	VOL- (GPIO6)	Click the volume down
10	TX (GPIO0)	Serial ports TX (TTL Level 3.3V)
11	RX (GPIO1)	Serial ports RX (TTL Level 3.3V)
12	MUTE (GPIO9)	Mute Control (mute output low), the control terminal of the power amplifier
13	LED0 (GPIO15)	Status Indicator
14	LED1 (GPIO17)	Status Indicator
15	VOL + (GPIO16)	Click the volume up
16	GND	Power Ground
17	FM_DISABLE (GPIO10)	FM Close Foot **(High level: FM Effective; low: FM Failure)** **High default** Note: Before powering effective control, control is disabled after power
18	SPI_MOSI (GPIO13)	SD / TF of SPI interface
19	GPIO5	Unused
20	SPI_MISO (GPIO14)	SD / TF of SPI interface
twenty one	SPI_CLK (GPIO12)	SD / TF of SPI Clock lines TF Open insertion detection
twenty two	USB_P (GPIO2)	USB positive
twenty three	USB_N (GPIO3)	USB negative
twenty four	IR (GPIO22)	Infrared interface
25	GND	Power Ground
26	AUX_DET (GPIO11)	AUX Insertion detection (default high, active low)
27	AUX_R	AUX Right channel input
28	AUX_L	AUX Left channel input
29	NC	No connection
30	MICIP	MIC Input positive terminal
31	VMIC	MIC Bias voltage
32	AUDIOLN	Audio left differential output negative end
33	AUDIOLP	Audio left positive differential output terminal
34	AUDIORP	Audio right differential output positive terminal
35	AUDIORN	Audio right differential output negative end
36	VDD3IO	IR Power supply interface
37	VBAT	power input(3.3V ~ 4.2V)
38	3VOUT	3V Output, SD / TF power supply
39	ADC	ADC Input (not enabled)
40	GND	Power Ground

1.7 Precautions

1. Application of the process module, please avoid influence of interference source amplifier, a booster circuit of other module, for avoidance module

An electrical series circuit with the power loop forming circuit means, in order to improve the whole SNR .

2. About Bluetooth wireless environment, wireless signal including Bluetooth applications are greatly affected by the surrounding environment, such as tree

Wood, metal and other obstructions will absorb a certain radio signal, so that in practical application, the distance data transmission by a

certain extent.

3. Since Bluetooth module supporting the existing system should be placed in the housing. Since the metal housing of the radio frequency signal

There is a shielding effect. It is recommended not installed in a metal housing.

4. **PCB Layout: Bluetooth module antenna portion is PCB Antenna, since the metal would impair the functioning of the antenna, when a layout of**

the module, the module floor and below the antenna traces prohibited, if hollowed out better.

1.8 AT instruction

1.8.1 Serial Configuration

1. Baud Rate 9600 ;

2.8 Data bits;

3. No parity bit;

4. One stop bit.

1.8.2 Instruction format

Control Instruction format: COM + <CMD> [<param>] \ r \ n

Feedback data format: < IND> [<param>] \ n

Description: The instruction is a control panel to control the Bluetooth control commands to " COM + "Back to start followed by < CMD> Control instruction, if the instruction to continue the transmission parameters, the instruction immediately < param> Parameters, and finally to "\ r \ n "End.

The feedback data is Bluetooth data and various status information back to the host, < IND> A feedback command, if desired parameters, then followed < IND> After continuing transmission < param> parameter.

note:

- \ R \ n : Character is Wrap (keyboard "Enter" key) , Hexadecimal 0x0D , 0x0A .

1.8.3 Serial demo

Figure 1.6 Below:

Map 1.6 Serial Open

1.8.4 **Control command table**

Serial command	Parameter Description	Instruction Description Function	For example
+ SNAME +	For example: COM + SNAME + BTBLUE \ r \ n "\ r \ n On behalf of a carriage return line feed, debugging assistant entered (Enter key)" BTBLUE Is the name after the modification	Modify the Bluetooth name	COM + SNAME + XXXX \ r \ n XXXX :maximum 16 Characters correctly: OK \ n error: ERR \ n Off effect after restart
PR		Pairing	BT + PR \ r \ n
AC		The last paired device connected	BT + AC \ r \ n
DC		Disconnect	BT + DC \ r \ n
CA		Answer the call	BT + CA \ r \ n
CJ		To reject a call	BT + CJ \ r \ n
CE		Hang up the phone	BT + CE \ r \ n
CR		Last Number Redial	BT + CR \ r \ n
PP		Music Play / Pause	COM + PP \ r \ n
PN		next track/ FM The next stage	COM + PN \ r \ n
PV		previous piece/ FM On one	COM + PV \ r \ n
VP		Volume Up	COM + VP \ r \ n
CD		Volume down	COM + VD \ r \ n
VOLx	x :(0-AF)	Set the volume	COM + VOLx \ r \ n correct: VOLx \ n error: ERR \ n
MVOL	x :(0-15)	Query current volume	COM + MVOL \ r \ n correct: VOLx \ n error: ERR \ n
PWD	Only power is turned on again	Shutdown	COM + PWD \ r \ n
PWDS		Soft-Off	COM + PWDS \ r \ n
PWOS		Soft Power	COM + PWOS \ r \ n
MC		Switching to the next operating mode formula	COM + MC \ r \ n
MBT		Bluetooth mode	COM + MBT \ r \ n
MSD		TF Mode (if available)	COM + MSD \ r \ n
MAX		AUX Mode (if there is effect)	COM + MAX \ r \ n
MFM		FM Mode (if there is effect)	COM + MFM \ r \ n
MUD		U Disk mode (if there is effect)	COM + MUD \ r \ n
IQ		Query the current mode and the like state	COM + IQ \ r \ n
MPM0		Repeat All Tracks (TF / U Under disk mode)	COM + MPM0 \ r \ n correct: PLAY_ALL \ n error: ERR \ n
MPM1		Single loop (TF / U Under disk mode)	COM + MPM1 \ r \ n correct: PLAY_ONE \ n error: ERR \ n
MPMC		The current inquiry MP3 Play Mode (TF / U Under disk mode)	COM + MPMC \ r \ n All cycle: PLAY_ALL \ n Single cycle: PLAY_ONE \ n

SMPxxxx	xxxx :(0001-9999) (" 0001 "Represents the 1 first)	Play selections (TF / U Under disk mode)	COM + SMP0040 \ r \ n
MRMP3	x :(1-9999)	Query currently playing MP3 Song number (TF Mode)	COM + MRMP3 \ r \ n correct: music_mun = x \ n error: ERR \ n
MMMP3	x :(1-9999)	Query current mode MP3 The number of songs (TF / U Under disk mode)	COM + MMMP3 \ r \ n correct: MMMPx \ n error: ERR \ n
MRUSB	x :(1-9999)	Query currently playing U Disc song number (U Under disk mode)	COM + MRUSB \ r \ n correct: music_mun = x \ n error: ERR \ n
SC		FM Machine start station search	FM + SC \ r \ n
ST		FM Stop station search	FM + ST \ r \ n
GF		Get the current radio frequency FM_FQ = 875 ~ 1081 between	FM + GF \ r \ n
SFMxx	xx : 01-99	By sending a sequence number is selected from Optional Taiwan	COM + SFM01 \ r \ n correct: FM_FQ = 998 \ n error: ERR \ n
SETFMxxx	xxx : 875 to 1081	set up FM frequency	COM + SETFMxxx \ r \ n correct: OK \ n error: ERR \ n
MRFM	xxx : 875 to 1081	The current inquiry FM Frequency rate(FM Mode)	COM + MRFM \ r \ n correct: FM_FQ = xxx \ n Such as: FM_FQ = 998 \ n FM_FQ = 1072 \ n Representing 99.8 , 107.2 error: ERR \ n
MMFM	xx : 01-99	Inquire FM How to search station(FM Mode)	COM + MMFM \ r \ n correct: MFMxx \ n error: ERR \ n
MFFMxx (xx : FM No.)		Inquire FM of xx No. A frequency corresponding to (FM Mode)	COM + MFFM01 \ r \ n correct: FM_FQ = xxx \ n error: ERR \ n

1.8.5 Query / feedback command

| Serial command	description	For example	Bluetooth return information
MR	Queries Bluetooth address	AT + MR \ r \ n	AD: 191919191919 \ r \ n
MP	PIN Code query	AT + MP \ r \ n	PN: 0000 \ r \ n
MN	Bluetooth name query	AT + MN \ r \ n	NA: BK3254 \ r \ n
MO	Bluetooth connection status inquiry	AT + MO \ r \ n	connection succeeded: C1 \ r \ n no connection: C0 \ r \ n
MV	Bluetooth playback status inquiry	AT + MV \ r \ n	Play: MB \ r \ n time out: MA \ r \ n disconnect: M0 \ r \ n
MY	Bluetooth inquiry HFP status	AT + MY \ r \ n	disconnect: M0 \ r \ n connection: M1 \ r \ n Caller: M2 \ r \ n Outgoing: M3 \ r \ n calling: M4 \ r \ n
The following is the Bluetooth initiative sent to the state			
Serial command	description	description	Bluetooth return information
EEROR	error		EEROR \ n
OK	Complete control instruction identifying		OK \ n
II		connection succeeded	II \ r \ n
IA		disconnect	IA \ r \ n
PLAY_ALL	Repeat All Tracks (TF Mode)		PLAY_ALL \ n
PLAY_ONE	Single loop (TF Mode)		PLAY_ONE \ n
VOLx	The current volume x level		VOLx \ nx On behalf of volume level
FM	Each time you switch FM Channel, the channel number automatic return		FM_FQ = 1081 \ n
MP3	Each time you switch MP3 Songs, song number automatically returns		music_mun = 1 \ n
USB	Each time you switch U Disk music, song number automatically returns		music_mun = 1 \ n
IRx	(TF / U Under disk mode) Each key infrared remote control numeric keys, the key value is automatically returned		IRx \ nx On behalf of the numeric keys
SY_PO		Bluetooth turned on	SY_PO \ n
ON		Bluetooth turned on	ON \ r \ n
SY_PF		Bluetooth off	SY_PF \ n
BT_AC		The current Bluetooth mode, Bluetooth Even being back	BT_AC \ n
BT_WP		The current Bluetooth mode, Bluetooth In pairing state	BT_WP \ n
BT_WC		The current Bluetooth mode, Bluetooth connection is in wait state	BT_WC \ n
BT_CN		The current Bluetooth mode, Bluetooth connected	BT_CN \ n
BT_PA		The current Bluetooth mode, Bluetooth Now Playing	BT_PA \ n
BT_IC		The current Bluetooth mode, Bluetooth A call	BT_IC \ n
BT_OC		The current Bluetooth mode, Bluetooth Telephone shot	BT_OC \ n
BT_EC		The current Bluetooth mode, Bluetooth He is busy	BT_EC \ n

SD_PA		**Currently SD Card mode, SD** Card playing status	SD_PA \ n
SD_PU		**Currently SD Card mode, SD** Card is paused	SD_PU \ n
UD_PA		**Currently U Disk mode, U plate** Playing status	UD_PA \ n
UD_PU		**Currently U Disk mode, U plate** In a suspended state	UD_PU \ n
FM_PA		**Currently FM mode, FM** You are listening state	FM_PA \ n
FM_PU		**Currently FM mode, FM** In a suspended state	FM_PU \ r \ n
FM_SC		**Currently FM mode, FM** The state of being seized Taiwan	FM_SC \ n
AX_PA		**Currently AUX mode,** **AUX Playing status**	AX_PA \ n
AX_PU		**Currently AUX mode,** AUX In a suspended state	AX_PU \ n

1.9 Infrared remote control
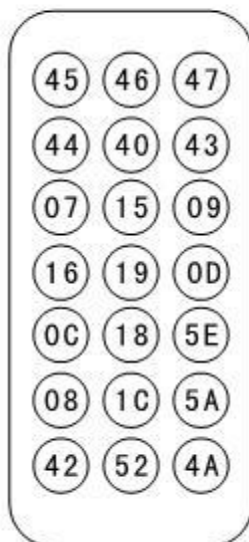
1.9.1 Infrared Control Instruction List

Infrared keys	description
0x45	The switch button (short press switch, the Bluetooth module is powered on by default)
Mode (0x46)	Mode switching key
(0x47)	Mute button
>| (0x44)	play / Pause; FM Mode: Long press to re-search function
| << (0x40)	On the one / on a
> >| (0x43)	Next / next station
EQ (0x07)	9 Kind EQ Switch button, power-on defaults normal-> BOOST-> treble-> POP-> ROCK-> CLASSIC-> JAZZ-> DANCE-> R & P
- (0x15)	Volume down
+ (0x09)	Volume Up
0	TF / U The disk mode: numeric keys (after pressing the ejection port " IR0 \ n ")
(0x19)	TF / U The disk mode: mode switching key song cycle (full circle - single cycle)
(0x0D)	U plate/ TF Card fast switching
1-9	TF / U The disk mode: numeric keys (after pressing the ejection port " IRx \ n " x representative 1-9)

1. in TF / U The disk mode, infrared remote control numeric keys 0-9 It has played selections (such as: Briefly press 111 , Such as a

Will, to jump to the first 111 Songs played).