

SparkFun Audio Bluetooth Breakout - RN-52

WRL-12849 ROHS ✓ ✱

★ ★ ★ ★ ☆ 10

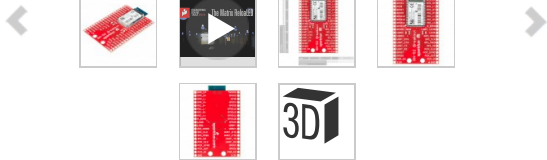
DESCRIPTION

FEATURES

DOCUMENTS

The RN-52 Bluetooth from Roving Networks is an audio module that makes it simple for you to create a hands free audio system for your car or remote control your media center. With this breakout board we've made it easy for you to drop it into any project you could use it for. All pertinent headers are broken out and labeled for your convenience.

The RN-52 module combines a class 2 Bluetooth radio with an embedded digital signal processor (DSP). The module is programmed and controlled with a simple ASCII command language. It provides a UART interface, several user programmable I/O pins, stereo speaker outputs, microphone inputs, and a USB port.



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3D Download: [Sketchup](#), [STL](#), [Blender](#)

[Previous Versions](#) ▾

SparkFun Audio Bluetooth Breakout - RN-52 Product Help and Resources

TUTORIALS

VIDEOS

SKILLS NEEDED



RN-52 Bluetooth Hookup Guide

AUGUST 29, 2013

A hookup guide to get you started with the RN-52 Audio Bluetooth Module Breakout Board.



Interactive Hanging LED Array

APRIL 10, 2014

Learn how we converted 72 lightbulbs into an interactive LED array for our conference room.

COMMENTS 36

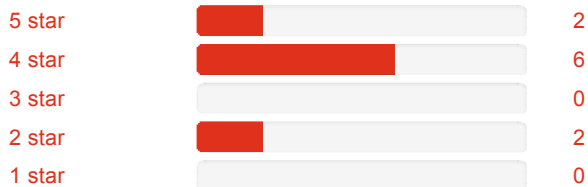
REVIEWS ★ ★ ★ ★ ☆ 10

Customer Reviews

Downloaded from [Arrow.com](#)

★★★★☆ 3.8 out of 5

Based on 10 ratings:



Currently viewing all customer reviews.

1 of 1 found this helpful:

★★★★☆ Shipping With Firmware V1.10

about 2 years ago by **Jeff42** ✓ verified purchaser

Getting this up and running, paired to a phone and playing music took around 15 minutes. SparkFun's hookup guide was very helpful, if not instrumental.

Getting this thing updated with V1.16, however, consumed over 5 hours this morning. My biggest issue was that Microchip's firmware update software didn't run as installed on my Win7 32-bit or 64-bit machines. I kept getting "The application has failed to start due to a side-by-side configuration error".

It seems the Visual C++ redistributable included with the firmware update software was not up to date. I could finally get the DFU program running after installing Visual C++ Redistributable SP1 from here:

<https://www.microsoft.com/en-us/download/details.aspx?id=26347>

Once running I discovered that firmware V1.10 does not support flashing over UART. So, I rummaged through a box of old parts and stole the cord from an old USB mouse and soldered it to the USB D+/- and ground. This worked, and the DFU driver installed automatically. At first it seems to install as a generic bluetooth device, but it switched to a DFU driver profile during the flashing process.

The procedure to flash is a bit complicated, holding GPIO3 high while "waking" it up, then holding PWR_EN high while clicking "next" before the flashing can start. SparkFun's hookup guide suggests that you hook up the PWR_EN pin directly to the 3.3V pin all the time. I am not sure if having the PWR_EN pin connected all the time will make the flashing procedure any easier as I opted to follow the DFU's recommendation exactly.

After all that, the flash procedure doesn't end properly. It errors out when trying to perform a "reboot" after the flash is complete, though after power cycling it seems to work OK.

This thread on Microchip's forums was helpful:

<http://www.microchip.com/forums/m813220.aspx>

From my brief time with V1.16, there's some strange idiosyncrasies, but the command reference is helping get the configuration sorted out. There are periodic breaks in the streaming (½ second or less, once or twice in every 3 or 4 songs).

BTW, the command reference for V1.16 is here:

<http://ww1.microchip.com/downloads/en/DeviceDoc/50002154A.pdf>

I purchased the above with the recommended FTDI 3.3V board. This made connection to the UART very easy. I am using HyperTerminal copied from an old XP machine.

Now, I am struggling to try and retrieve track metadata. I issue the command "AD" which returns nothing but "AOK". After some head scratching and google searching, it appears that track metadata is only supported in A2DP 1.3 or later, which is a phone problem not an RN-52 problem. I have an HTC Amaze, running ICS version 4.0.3 which, as far as I can tell, is still A2DP version 1.0. So, I'll have to borrow someone else's newer phone to verify if this works.

FWIW the caller ID data (command "T") works great. It returns the phone number and the name from your contact card.

It's a fun little project, that's for sure.

Edit (2015/11/12): I just tried the "AD" command while connected to a friend's Samsung Galaxy S5. It works! This is the data that was returned: Title=Fly Artist=Maddie & Tae Album=NewMusicDownloader TrackNumber=39 TrackCount=68 Genre=<unknown> Time(ms)=217349

3 of 3 found this helpful:

★★★★★ Breakout top-notch, Microchip support awful

about 3 years ago by **Member #2391** ✓ verified purchaser

Microchip Technology, having bought Roving Networks years ago is terrible at supporting the RN-52. Much of the API is totally undocumented and prevents a person from hooking up line-level audio directly to the RN-52

Downloaded from [Arrow.com](http://www.arrow.com) which supports line-level input.

Having worked there for 3 years I expected far better/faster support. I finally DID get some:

1. How do I bypass the microphone gain stage to use the RN-52 with a pre-biased ($\frac{1}{2}$ of 3.3v), line-level audio input signal? This is referenced in the usage guide and datasheet but there is no command documented to use this. Does my application require a CODEC? I sure hope not.

The microphone gain can be changed from -3dB to 42dB in linear steps. If the gain is set to less than 24dB using the 'SM' command the line in mode is automatically entered.

1. Is the audio output intrinsically a line-level signal?

The audio output is a speaker level signal and not line level signal.

1. Which input channel (left or right) is used when in HFP mode? I'm making a device to turn a standard telephone into a bluetooth handset by way of a SLIC.

MIC_L+/- is used for HFP mode.

Hope this review helps you guys!

👤 **Single T** replied on July 27, 2015:

Thanks for sharing

★★★★★ Easy to configure.

about 3 years ago by **gcachon** ✓ verified purchaser

The product is the best, arrived on time, and the tutorials helped me make it work. I am happy with the product.

★★☆☆☆ Good breakout but...

about 2 years ago by **Member #737903** ✓ verified purchaser

The form factor is ok, just a bit too big... However, even following the hookup guide, it was impossible for me to get a signal to an amplifier from the Speaker outputs. I sent command, did a factory reset.. etc. Nothing ended up working. So well, I give a bad mark because it is not as simple as described and as expected to use...

Side note: pretty disappointed with the shipping fees of Sparkfun when ordering from Canada and having the surprise to pay the taxes at the border. Why not paying everything online and having lower shipping rates?...

👤 **Single T** replied on December 8, 2015:

Sorry about the issues. Please contact our support team for assistance with your board questions. As for customs fees, unfortunately there is no easy way to include the cost of fees and taxes for international customers as each country has it's own way of calculating the cost. We wish there was more we could do about that.

0 of 1 found this helpful:

★★★★☆ This breakout board does the job

about 2 years ago by **handco** ✓ verified purchaser

Well, the breakout board does the job, allowing an easy access to each pins. Got some paring and sound after 1 hour. However, the RN52 lacks of documentation, and some functionalities are a pain (profil, microphone...).

★★★★☆ Audio source

about 2 years ago by [RawLiquid](#) 

So I made the mistake of buying this module after seeing somewhere that it had support for being an audio source, and finding numerous places where spark fun replied to people 2 years ago saying things about an update coming soon with the support. Well that info is just plain wrong. The only way to get source support is by finding the rn52src module, which as of right now stand around 200 available between mouser and Digikey with both notating that the part is non stocked and min quantities will be required once existing stock is depleted. So I ask this, rather than resolve this by doing the return/refund thing, I don't mind keeping this one, but what will it take to get a breakout board without the module on it? Either a totally unpopulated board or partially populated one would be acceptable, and of course I don't expect it for free, but somewhere close to the price of this board minus the you sell the module for seems reasonable...

 [Single T](#) replied on February 29, 2016:

Hi, I wish I could help you with a PCB. Unfortunately we don't have any extras to offer up. I wish there was more I could do for you.

★★★☆☆ Probably not what you want if you aren't using *only* the speaker outputs

about 5 months ago by [Member #1121674](#) 

There doesn't seem to be a way to get high fidelity audio from the external microphones. From my understanding, this doesn't seem to be well supported in general for BT. I could get extremely noisy 8kHz audio from a single channel, but I couldn't manage to do any better than that. I bought two of these and both exhibited the same issues. I tried several profiles. I guess it's possible that I missed something, but it seems the mic-in features are falsely advertised. I had no issues transmitting audio to the chip to play through a speaker (didn't check whether stereo worked, distortion was not apparent, but I didn't test this very thoroughly). Save your money.

Also the mic bias pin always seemed to sit around a few mV, which is hardly a bias for a 3.3v device.

★★★★☆ Works amazingly, needs better support

about 3 years ago by [Member #331467](#) 

This thing worked like a charm right from the get go. I built a Bluetooth interface for a motorcycle and it can communicate only about 6-8 ft, but that's through fairing and container.

The only problem I have with it is that information regarding setting and programming is extremely limited and the information available is tough for someone at my amateur level of electronics to understand.

★★★★☆ FW update goes fine

about 2 months ago by [Doug M](#) 

I was able to update the FW without any trouble at all over USB. I simply left PWR_EN tied high and that went fine.

Now, to see if I can actually get it to do what I want...

★★★★☆ Having some problems

about 3 years ago by [Member #665661](#) 

I have been able to connect to the RN52 with my IPOD, but not able to get any sound through it yet. It would be nice to know what level of firmware is in the RN52. I have not yet connected through the UART port. Still working on getting that to work.





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