



# SparkFun Simultaneous RFID Reader - M6E Nano

SEN-14066

19

DESCRIPTION

FEATURES

DOCUMENTS

- EPCglobal Gen 2 (ISO 18000-6C) with nominal backscatter rate of 250kbps
- Separate read and write levels, command adjustable from 0dBm to 27dBm in 0.01 dB steps
- 0.84W in ready mode
- 0.00025W in shutdown mode
- Up to 150 tags/sec to read 96-bit EPC
- 80msec typical for standard write of 96-bit EPC

## Tags

ARDUINO

M6E NANO

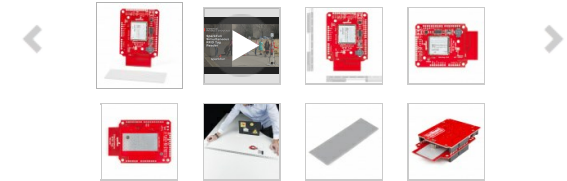
RFID

SENSOR

SHIELD

SIMULTANEOUS

SPARKFUN ORIGINAL



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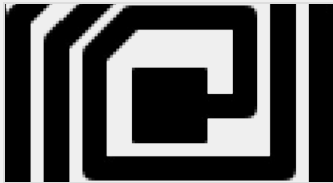
## SparkFun Simultaneous RFID Reader - M6E Nano Product Help and Resources

TUTORIALS

VIDEOS

SUPPORT TIPS

hackster.io



RFID Basics

FEBRUARY 23, 2017

An overview of Radio Frequency Identification (RFID) technology.



Simultaneous RFID Tag Reader Hookup Guide

FEBRUARY 23, 2017

A basic guide to getting started with the RFID Tag Reader breakout and how to read and write multiple RFID tags over multiple feet!

COMMENTS

92

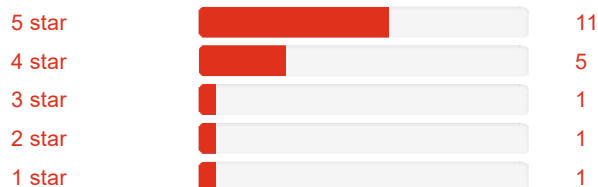
REVIEWS

19

# Customer Reviews

★★★★☆ 4.3 out of 5

Based on 19 ratings:



Currently viewing all customer reviews.

1 of 1 found this helpful:

★★★★★

about 2 years ago by **Vince5** ✓ verified purchaser

I can read a tag from over 5 meter away using a 80mm ceramic antenna.

1 of 1 found this helpful:

★★★★★ Everything I needed

about 8 months ago by **CurtisD** ✓ verified purchaser

This was exactly what I need. I am making this review to encompass and answer every question I was having at the start of my project so if someone is trying to do something similar they can have more of their answers answered. My project that I used this for was to use python in a Raspberry Pi to interface with this reader using an external antenna up to a distance that would cover a normal traffic lane. My project would essentially be a Time-Trial RFID Timing System.

It worked, I have all the parts that I used from Sparkfuns site listed at the bottom of this review.

Preparing the board for use with internal antenna First, when I ordered these parts I did have to solder on the connectors. Another thing to note also, The serial USB breakout that I ordered did not have all the matching labels on the reader (TX0 and AX1 were switched) but matching BLK to BLK and GRN to GRN is the correct way of connecting it for reading through USB. I also bought the 6AH Lithium Ion batter for external powering, I am sure smaller battery options are viable I just needed more than an hour of run-time with mine at full power.

connecting the board with the Raspberry Pi 3b+. Utilizing the serial breakout, I physically connected this with a simple USB to USB Micro cable. Programmatically connecting the Pi to this unit was one of the more difficult parts. For me, I had to make sure the latest python version was installed along with the python-mercurypapi python wrapper. For simple non-GUI related programs using this you can get away with python 2.7 but I wanted to use the tkinter python GUI library for this project so Python version 3.7 or later was easiest to work with. I had to google how to find the correct reading tty address and for my pi with this connected it was TTYUSB0. It might be different for others but this was mine.

Using the internal antenna When starting if you are not using external power, you have to set read power to 5 dB otherwise the unit will brown out and become unresponsive until you restart the read attempt. The successful read distance I was getting with both external power and the USB set up for powering was about half a foot. I have a hunch this was because allowing the USB to provide power to the system was producing noise and degrading its read accuracy. That will be discussed in the external antenna portion.

Preparing it for an external antenna. First, follow the directions listed in the guide they provide for setting up external antenna. Second look at the schematic. I spent a few extra minutes removing solder unnecessarily because I thought I had accidentally bridged a connection between SJ1 and SJ2. These two connections are bridged internally so as long as SJ1 is desoldered and no longer jumped and SJ2 is jumped with solder, that is what is necessary. When using the WRL-14131 Antenna that was recommended with the USB and Battery providing power, I was only getting a read distance of about 7 feet. After carefully severing the power jumper to the USB as listed in the guide using an Exacto knife, I was able to get read distances over 15 feet which to me is a great success. I believe the noise introduced by USB power significantly degrades the range of the unit with both external and internal antenna. So if you find yourself lacking distance it is something to consider.

PARTS I USED LIST: SEN-14066, WRL-14147, WRL-14131, CAB-14132, WRL-00662, DEV-14050, PRT-00553, PRT-09749, PRT-10217, WRL-14147, PRT-13856

Parts I used not listed on Sparkfun: Raspberry Pi 3b+, USB to USB-Micro cable

2 of 3 found this helpful:

★★★★★ Game Changer For Makers

about 3 years ago by **Member #921790** ✓ verified purchaser

The reader works great, even without the antenna the range is better than any other hobbyist RFID devices I've found for this price. The supporting documentation is very thorough and helpful. If you want to add a bigger range to your rfid projects, buy this.

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1 of 2 found this helpful:

★★★★☆ Everything is great except switching to external antenna

about 3 years ago by [ppelleti](#) ✓ verified purchaser

This is mostly a great board. It works as advertised, and I've had no trouble using it. (I'm using it with Mercury API on a Raspberry Pi.) Based on that, I would have given it 5 stars.

However, the mechanism for switching from the internal to the external antenna leaves a lot to be desired. The solder jumpers that need to be changed are very small, and I ended up ruining my first board trying to switch to the external antenna. I bought a second one, and succeeded in enabling the external antenna on that one. But, I am cranky that I had to spend instead of .

Also, it would be nice to be able to switch back and forth between the internal antenna and the external antenna. Some sort of DIP switch rather than a solder jumper?

Now that I've got the external antenna working, I'm a bit disappointed in its performance. I've sometimes been able to read tags 8 feet away, but other times I've had trouble reading tags 3 feet away. And I haven't been able to pick up tags at anything close to the advertised 16 feet. (This is at maximum power, of course.) Also, if you want to read the user memory, the tag needs to be closer than if you just want to read the EPC.

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1 of 3 found this helpful:

★★★★☆ Arduino library not working

about 3 years ago by [scanman](#) ✓ verified purchaser

the board works well with the supplied thingmagic software, however the arduino library does not connect to the board.

No support from sparkfun for 4 days so far, may as well buy the chip directly from thingmagic and bypass the sparkfun board.

👤 [Kansukee](#) replied on May 4, 2017:

Hello!

Sorry about the delay for support - the only case I see that you have open is #220744 that was submitted 23 hours ago. While our technical support team is very dedicated to offering the highest level of service that we can, at the same time they are a small department of 7 technicians that handle cases in the order in which they were received.

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★★★★★ Stopped responding in 2 Hours, but it was our fault ;)

about 2 years ago by [Member #1273342](#) ✓ verified purchaser

Engineers gave wrong voltage to the board. New Piece worked really well. I am addicted to this site now. Previous Comments- "I am not harsh but unfortunately, it worked well and produced good results for 2 hours and suddenly the board is dead, no response at all. I do trust this company and product. I just reorder it. Hope this (new piece) will live way longer than previous one. Also when we order from India, we end up paying 100% import duty that is a bit hard.

I am willing to come and change this rating as soon as I receive the latest order and it works for me. "

👤 [CF](#) replied on February 20, 2018:

I'm sorry to hear that! Please contact our [technical support team](#) for help with this. They will be glad to help.

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★★★★★ Great start

about 2 years ago by [theootherphp](#) ✓ verified purchaser

I'm using the SRTR to count laps for a charity walkathon. So far, I've soldered the header for Serial Basic, connected them via USB to my Ubuntu machine, and programmed with a python wrapper to the Mercury API (see github). Tags are read and written successfully using the PCB antenna. I'll try the high-gain antenna soon. I appreciate SFE comments on power and thermal management, as those will definitely be a concern for my project.

about 2 years ago by [24 Hour Engineer](#) 

Sparkfun went a long way to make this approachable to makers and hobbyists. First, it is an Arduino shield so much of the hardware connecting is taken care of out of the box. Second, their tutorial was thorough and the included examples made reading the first tag a simple matter. Third, this was on the low-end of the price scale for UHF modules but it used a high-end chip. I used an Arduino UNO clone to start and had no troubles. Don't forget to buy the Interface Cable RP-SMA to U.FL (WRL-00662) if using the external antenna, it was not listed in the Hookup Accessories.

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★★★★☆ **Missing the cable for the larger antenna**

about 2 years ago by [JackH](#) 

It's missing the cable for the larger antenna, and it's NOT listed as 'recommended' have not tested it because of this. But it's a very nice shade of red!

 [CF](#) replied on July 17, 2018:

Sorry about that! It looks like the two cables you need to connect the external antenna are part numbers [CAB-14132](#) and [WRL-0662](#). These should also be listed in the [hookup guide](#) as well.

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★★★★☆ **Doesn't work - pressing pro use**

about a year ago by [Member #713995](#) 

This expensive RFID reader doesn't work either with the standard Arduino Uno as described in the tutorial or with a serial Rx/Tx module to communicate with it. Does this RFID reader needs to be flashed ? Would REALLY appreciate some quick and pro help

 [CF](#) replied on November 7, 2018:

We're sorry you're having trouble. Please contact our [technical assistance team](#) for help with your board. We do test these before shipping with a RFID tag so you should have received a working unit. Our support department should be able to get you up and running.

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★★★★★ **Good quality**

about a year ago by [Member #622040](#) 

Works as expected, easy and fast. I owned other pcb unit, programming is easy and support is best fit for me.

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★★★★☆ **Good - but room for improvement**

about 9 months ago by [Member #1526255](#) 

I have two gripes with this component. Firstly, the range without an external antenna is measly: you'll be lucky to get 6 inches. Secondly, it doesn't support multiple antennae.

That said, it does work; you'd pay at least double for a Simultaneous RFID Reader elsewhere; and no one else - to the best of my knowledge - makes a Simultaneous RFID Reader which slots in so well with an Arduino.

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★★★★☆ **excellent multiple RFID reader**


about 5 months ago by [c16259](#) 

It worked exactly as it described, was able to read 10 tags simultaneously. excellent RFID reader

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0 of 3 found this helpful:

★★★★☆ **Major struggle to use this reader**

about 3 years ago by [Member #553026](#) 

After installation of the Universal Reader Assistant utility under Windows-7, and connection via a known working FTDI USB-to-Serial controller, the software will not connect to the device. It just hangs and so is useless. This has turned into an expensive "boat anchor".

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★★★★★ **Works great**

about 2 years ago by [Member #757449](#) 

No issues what-so-ever. I followed Sparkfun's tutorial (well written) and was reading RFID tags in a short time.

★★★★☆ Pretty amazing range

about 2 years ago by [blorgggg](#) ✓ verified purchaser

Longest range I have ever used on an RFID. Works a bit strange sometimes, but sparkfun tech help gave me some advice. Used in a large art installation. Going to purchase a second one for a zoo project!

★★★★★ Great product

about 2 years ago by [Member #1191061](#) ✓ verified purchaser

It works as advertised. Range was not better than 8 feet with the recommended antenna at max power, however changing the antenna to the 80mm ceramic the range improve above the 18 feet. Thanks Sparkfun and Vince5 for your posting.



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