

## 02/27/2014 FS1000a 315mhz RX/TX pair

### 1. Project Reference Number / Title:

- 20140227 FS1000a 315mhz RX/TX pair

I have a corner! :-)

Feb 27, 2014

Initial tests of FS1000a 315mhz RX/TX pair:

This document seems to be relevant to these transmit and receivers.

<http://ardumarket.com/en/transmisors/transmisor-rf-fs1000a-330-443mhz-arduino-pic-id19.html>

You also need the library from here:

<http://www.open.com.au/mikem/arduino/VirtualWire/VirtualWire-1.14.zip>

The library contains the sketches found on the page, with the exception that they don't set the RX or TX pin

```
vw_set_tx_pin(3);
```

```
vw_set_rx_pin(3);
```

Also the receiver sketch seems to be a bit different - the example in the library prints out HEX codes.

for the most part these are very simple to use - one Arduino is setup to send information, the other is setup to receive that information - and do something with it.

Modulation type is ASK - or Amplitude Shift Keying - This type of modulation is like AM radio for data So it has some of the same weaknesses and strengths of AM. For more information see:

[http://en.wikipedia.org/wiki/Amplitude-shift\\_keying](http://en.wikipedia.org/wiki/Amplitude-shift_keying)

Finding a distance for them was a little harder, but as near as I can figure

40 meters or 131 feet indoors, 100 meters or 328 feet in the open.

I tested at about 60 feet inside and it worked without a problem.

Range seems to be dependant on how much voltage you put on the transmitter - from what I found the TX board can handle between 3 to 12v - with 5v being normal - I don't know if I trust 12v in this figure, as I only found a couple of sites that said it, and the TX boards were not the same board we have. Better to be safe then sorry and go with 5v.

Like finding a range for these, finding a speed wasn't as easy as it should be - most sites say between 4800 and 9600 baud work well. A couple of sites say they can go faster, but faster

may cause unreliable data (or no data at all). One site even said that speed was dependant on distance (I don't think that is right given the type of modulation this uses, but maybe). The sites that have 480 to 9600 baud listed say that it's a reliable low speed for general use such as reading sensor data.

Impressions of this it would make a good low power data sender for a remote sensor, only takes up one pin, and is really simple to use.

Other information (But not sure if the RX/TX board are the same as what we have):

[https://www.sparkfun.com/datasheets/RF/KLP\\_Walkthrough.pdf](https://www.sparkfun.com/datasheets/RF/KLP_Walkthrough.pdf)

[http://www.seeedstudio.com/wiki/index.php?title=315Mhz\\_RF\\_link\\_kit](http://www.seeedstudio.com/wiki/index.php?title=315Mhz_RF_link_kit) (Pretty sure this is our board)

<http://www.seeedstudio.com/depot/315mhz-rf-link-kit-p-76.html>

Update: Feb 28 - Maybe this is not as easy as I first thought, the library seems to have some quirky issues - 1st it seems to want to send a "const char \*variable", I'm not really sure what that is. (Found this out by trying to send a tempature variable floating point to it) and the 2nd thing I found is that it doesn't work on some of the lesser know Arduino like boards. (have been trying for the past 2 hours to get the library to work with my Squarewear, wearable temperature sensor, only to find it really doesn't like that hardware at all) Admittedly the squarewear is not an Arduino, it is closely related to one.

Plans this weekend, try some alternative methods of getting these RF devices to work.