

FM Radio Arduino Shield Operating Guide

Part # ci0335 - v1.3 - 05/03/2010

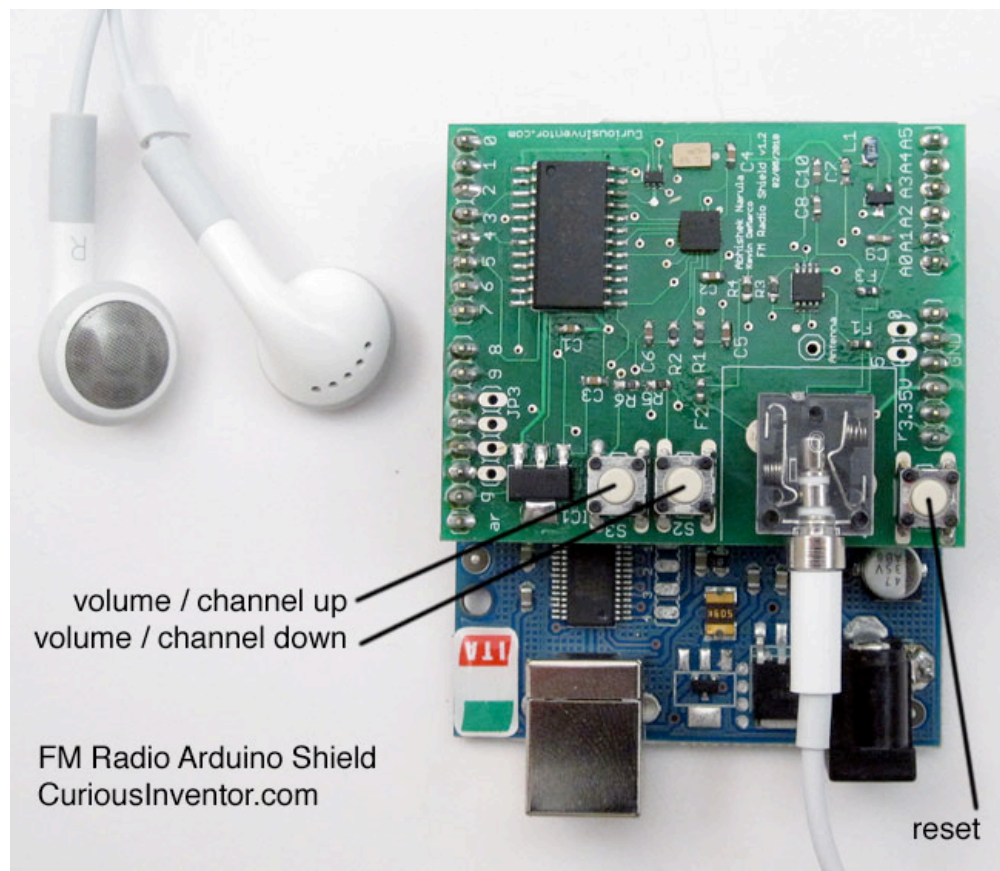


1. Using the Buttons

The buttons near the headphone jack can be used to change the stations and the volume.

Station Mode: When the Shield is connected to an Arduino the buttons are set to the Station mode. By pressing the left and right button, one can change the station up and down respectively. By holding down the button for 1 sec the Arduino will scroll through the stations.

Volume Mode: Press both the buttons together to go into the volume mode. By pressing the left and right button, one can change the volume up and down respectively. To get back to the station mode press both the buttons simultaneously.



2. Using the Arduino Serial Monitor

Using the Serial Monitor provides the user access to other features, besides changing stations and volume. Start the Arduino program and download the *FM_API* file onto the Arduino. Open the Serial Monitor and select Baud Rate of 115200. The following commands can be used to control the FM Radio Shield:

Command	Function
1	Volume Up
2	Volume Down
3	Fine Tune up
4	Fine Tune down
5	Seek Up
6	Seek Down
7	Display Current Station with Signal Strength
8	List top 3 weakest stations
9	Display all stations with their signal strengths
r	Display RDS buffer
t	Toggle Continuous RDS display on/off

3. Using FMApi.h

The FM Shield can also be programmed using the *FMApi.h* file. This file contains the API needed to control the FM Radio Shield and other helper functions. To use the API functions open a new Sketch in Arduino and include *FMApi.h* on the top. These functions are as follows:

- **InitiFM** : This function sets the pin definitions etc. for the Arduino. This function is required to be called first.
- **PowerUpSi4701** : Turns the FM chip on. Sets to US Radio.
- **PowerDownSi4701**: Turns off the FM chip.

- TuneTo : Tune to a particular station. Function takes in the StationFrequency X 10. E.g. if you want to tune to 99.7 MHz, the function call would be TuneTo(997).
- setVolume : Set volume from 0 to 15
- SeekUp: Seeks up to 108.0
- SeekDown : Seeks down to 87.5
- RDSOn : Turn on RDS functionality.
- getRDSdata : get RDS data and put it in a Buffer. This will be done in the background.
- DispRDS : Display the RDS Buffer.
- FindStationClear : Scan stations and report 3 with weakest signals.
- ChangeAds : Automatically change station if an ad is detected. NOTE: This function is only an example of how this can be done. Currently this is set for Atlanta Radio only.

Example Code:

Listening to FM Radio @ 99.7 MHz (Note: Sequence of power up)

```
#include "FMApi.h"
InitiFM(); //Initialize the Arduinio
PowerUpSi4701();//Power the FM Chip
TuneTo(997); //Tune to 99.7
```

Setting volume to 10

```
setVolume(10);
```

Power down FM chip

```
PowerDownSi4701();
```