## Arduino based - SI4735 DSP Radio features

**Battery and Speaker Connections**

**Pay Attention when wiring the battery plug. The diagram shows the terminals and Polarity. Use an 8.4v 2 x Lithium-ion cells such as 18650 wired to a BMS. (Battery Management system) easily available on the market.**

**Next to it the speaker connector is located. The Polarity is inverted on this connector and should be connected to an 8-ohm 1 watt speaker.**

**The jumper locater behind the antenna BNC connector selects the band. Please refer to the diagram.**

|  |  |
| --- | --- |
| **Battery & Speaker Connections** | **Band Selection** |

# Operating the receiver.

**AUDIO VOLUME**

Press the **VOL+** push button and rotate the encoder. Press the button again to disable the command or wait for 4s.

**THE BAND**

Press the **BAND+** push button and rotate the encoder. Press the button again to disable the command or wait for 4s.

**AGC AND ATTENUATION**

Press the **AGC** push button and rotate the encoder. Press the button again to disable the command or wait for 4s.

**SOFTMUTE AND ATTENUATION**

Press the push button labelled **"BAND-"** and rotate the encoder. Press the button again to disable the command or wait for 4s. This button was used to control the band switch. Due to the new interface, this button has lost its original function.

**BANDWIDTH**

Press the **BW** push button and rotate the encoder. Press the button again to disable the command or wait for 4s.

**SWITCHING THE STEP FREQUENCY**

Press the **STEP** push button and rotate the encoder. Press the button again to disable the command or wait for 4s.

**SWITCHING THE MODE AM, LSB AND USB**

On AM mode press **MODE** push button to switch to LSB mode. press MODE push button again to switch to USB mode. and finally press MODE push button again to switch AM mode.

**VFO/BFO Switch**

To control the VFO and BFO, you can use the encoder push button on SSB mode. The display will show you if you are using VFO or BFO.

**SEEK COMMAND**

On FM or AM modes press the encoder push button. The direction of the seek up or seek down will depend on the last rotating movement of the encoder, clockwise and counter clockwise respectively.

**RESET the memory - EEPROM**

Turn your receiver on with the encoder push button pressed.

## Features/ Specifications

* Twenty-three bands. Two VHF(FM). one LW. two MW. and Nineteen SW bands covering from 1800 to 30000 kHz.
* Band, Volume, Step, Bandwidth, AGC/Attenuation are now controlled by encoder.
* **"Vol-"** button now is used to display the battery voltage.
* "**BAND-"** **now is used to control Soft mute Attenuation**.
* All the previous status of the receiver can be rescued when you turn it on (including SSB mode, bandwidth, volume, frequency, BFO etc).
* **The bandwidth now is a property of the band (you can use different bandwidth for different bands)**.
* Bandwidth control on FM mode (Auto, 110, 84, 60 and 40 kHz).
* Bandwidth control on AM mode (1, 2, 2.5, 3, 4 and 6 kHz).
* Bandwidth control on SSB mode (0.5, 1, 1.2, 2.2, 3 and 4 kHz).
* AGC (Automatic Gain Control) and Attenuation control.
* Soft-mute Attenuation Control.
* FM/RDS presentation was improved.
* **The seek function was improved (it is more precise on FM mode)**. The seek direction is controlled by the encoder (clockwise or counter clockwise. Press encoder push button to start the frequency scanning.
* Steps: 1, 5, 9, 10, 50 and 100 kHz.
* **Now you can configure MW band space to 9 or 10 kHz**.
* New FM band from 64 to 84 MHz and 84MHz to 108MHz
* New MW band from 531 to 1701 kHz for Europe, Africa, and Asia.
* The frequency on Display is bigger than the previous version.
* Now the bandwidth sequence is ordered by bandwidth values.
* After about 4 seconds, all command buttons are all disabled and the encoder control goes back to the frequency.
* The status of the receiver will be stored only after 10 seconds of inactivity.

## Schematic Diagram

Front Panel:

Diagram, schematic

Description automatically generated

## The Mainboard :

