



Operation Description



AUDIO SYSTEM WITH BLUETOOTH is a stereo speaker, which plays music from Line in input or compatible Bluetooth audio devices. The output power is 3 watts per channel to 4 ohms speaker. Volume Control tact switches to control Bluetooth volume level with  button to turn  the unit. Connect/ pairing button to connect Bluetooth devices. Green LED slow blink when in no operating mode. Green LED lit when Bluetooth audio streaming. Green LED start to quick blink and sound of 2 short tones is heard for pairing/ searching devices.

The speaker consist of several functional blocks (see block diagram).

- i.) Bluetooth module (57F68)
 - It is a Class 2 bluetooth module, the crystal frequency is 26MHz
Controls the behavior of the speaker.
- ii.) Interface controls
 - Connect or pair, volume tact switches to adjust Bluetooth volume and LED indications for user interface.
- iii.) Line in
 - Connect to music player.
- iv.) Differential /Summing amp
 - Differentiate Bluetooth module out audio signals, sum the Line in and Bluetooth signals together.
- v.) 5V regulation circuit
 - Provide power supply for operational amplifier.
- vi.) 3V3 regulation circuit
 - Provide power supply for Bluetooth Module.
- vii.) Power supply circuit
 - Filter and distribute out supply to other blocks.
- viii.) EQ
 - Control the frequency response.
- ix.) Power Amp
 - Amplify the signal

The working frequency of RF module 57F68 is set to 2402MHz ~ 2480MHz, the separation is 1MHz and there are 79 channels.

The working procedures are:

1. Power on, press and hold the  button, when the  indicator light flashes faster, the ARS50 enters pair mode. The ARS50 will do the frequency hopping according to a certain sequence, and then send the connection command.
2. If there is a Device response, the ARS50 will judge whether it can be permitted to connect. Promptly enter a passkey.
3. If the passkey is right, then it can be permitted to connect, send the connection command to build up the connection.
4. While the connection builds up successfully, the data transmission is beginning. At the same time, the ARS50 and device will shift frequencies in synchronization per a same pseudo randomly ordered list of hopping frequencies, the hopping rate is 1600 times per second.
5. The bandwidth of the receiver, which is set to a fixed width by the software, matches the hopping channel bandwidth of their corresponding transmitter.