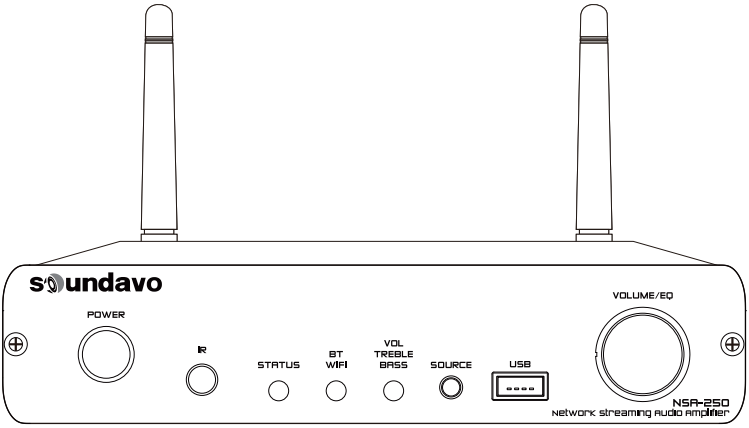
soundavo



NSA-250

2 x 50W
Network Streaming Audio Amplifier

Soundavo **NSA-250** is an ideal solution for residential and commercial audio installations that require a simple setup and great sound output. With the compact size and Class D circuit, the amplifier can easily be mounted at the indoor area. The amplifier can be used in a stereo system with a subwoofer output. The inputs consist of wireless Streaming/Bluetooth, S/PDIF, USB and RCA Aux input. With these built-in functions, NSA-250 amplifier is suitable for wild range of applications, including home stereo sound system, personal entertainment, store, restaurant, conference room, etc.

OWNERS MANUAL

DEAR CUSTOMER

Thank you for purchasing this product. For optimum performance and safety, please read these instructions carefully before connecting, operating or adjusting this product. Please keep this manual for future reference.

WARNING

1. Do not expose this unit to water, moisture, or excessive humidity.
2. Do not install or place this unit in a built-in cabinet, or other confined space without adequate ventilation.
3. To prevent risk of electrical shock or fire hazard, due to overheating do not obstruct unit's ventilation openings.
4. Do not install near any source of heat, including other units that may produce heat.
5. Do not place unit near flames.
6. Only clean unit with a dry cloth.
7. Unplug unit during lightening storms or when not used for an extended period of time. A surge protector is strongly recommended.
8. Protect the power cord from being walked on or pinched, particularly at the plugs.
9. Use unit only with accessories specified by the manufacturer.
10. Refer all servicing to qualified personnel.

CAUTION

CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK,
DO NOT REMOVE COVER (OR BACK).
NO USER-SERVICEABLE PARTS INSIDE.
REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

INTRODUCTION

Soundavo NSA-250 is an ideal solution for residential and commercial audio installations that require a simple setup and great sound output. With the compact size and Class D circuit, the amplifier can easily be mounted at the indoor area. The amplifier can be used in a stereo system with a subwoofer output. The inputs consist of wireless Streaming/Bluetooth, S/PDIF, USB and RCA Aux input. With these built-in functions, NSA-250 amplifier is suitable for wild range of applications, including home stereo sound system, personal entertainment, store, restaurant, conference room, etc.

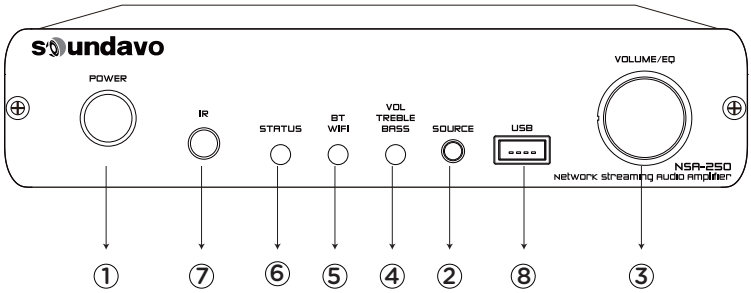
FEATURE

►Class D Digital Amplifier.
►Output Power 2 x 50W RMS @ 4 Ω.
►Selectabel Input Source: AUX RCA/OPTICAL/ BT/USB/WIFI IN.
►SUB Out to another amplifier or Active Subwoofer.
►Volume Adjustable
►Designed in aluminium extrusion rack.
►IR Remote Control
►Universal power supply

SPECIFICATION

Power Output: ..... 25WX2 (RMS @ 8 Ohms)
..... 50WX2 (RMS @ 4 Ohms)
THD: .....<1% (Rated power: 25W @ 8 Ohms)
S/N: .....>90 dB A WTD
Frequency Response : ..... 20Hz~22KHz +0/-2dB@ 8 Ohms
RCA Input Sensitivity: 700mV
Thermal Protection: ..... Yes
Short Protection: ..... Yes
Bluetooth Version: 4.2
USB Version: 2.0
Music file format: ..... Support MP3 / WMA / AAC / AAC +
..... ALAC / FLAC / APE / WAV
Wireless Network: ..... Support 802.11b/g/n. Compatible
..... with Apple Airplay, DLNA
Dimension: ..... 200mm x 47.5mm x 160mm (WxHxD)
Weight: 1.5Kgs

FRONT PANEL



1. **POWER SWTICH**

2. **SOURCE:** Press to select Input Source.

3. **Volume/EQ Knob:** Press rotary encoder to select between Volume (default), Bass and Treble, momentarily pressing this button and turn to toggles between those three function

Each step turns changes the mode as illustrates by the LED color (flashing)

Volume (Red LED): To increase the volume, rotate the rotary encoder (4) clockwise. To decrease the volume, rotate the rotary encoder counter-clockwis

Treble (Yellow LED): To adjust the treble level from, press and turns the rotary encoder with flashing YELLOW LED appears, Rotate the control clockwise to increase or counter-clockwise to decrease the Treble.

Bass (Blue LED) : To adjust the treble level from, press and turns the rotary encoder with flashing BLUE LED appears, Rotate the control clockwise to increase or counter-clockwise to decrease the Bass

4. **Wi-Fi:** Press SOURCE button to select Wi-Fi streaming as input, the Wi-Fi LED lights flash, go to your smart device and open Streaming APP. And then following the instruction of operating from the APP for connecting to the local Wi-Fi network. The LED will light steady when Wi-Fi Streaming connected succesfully. **Note:** Please make sure the smart device connected to the same Wi-Fi network.

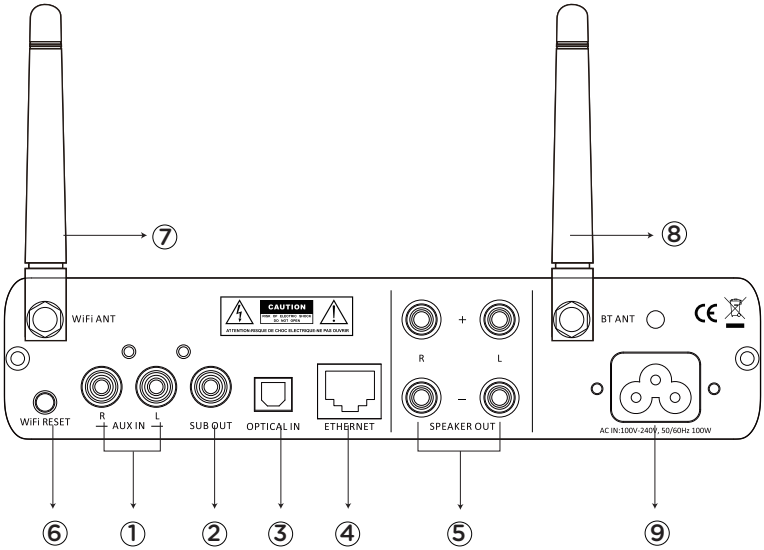
5. **BT:** Press SOURCE button to select Bluetooth as input, the BT LED light flash indicates the amplifier is in pairing mode, go to your smart device's Bluetooth setting menu and find the amplifier in the device list, then connect Bluetooth between two devices. Once the devices connected, there is prompt tone from amplifier to indicate the Bluetooth is connected and LED lights steady. Using smart device to disconnect the Bluetooth connection.

6. **STATUS:** Lights up while the unit is connected to the local Wi-Fi network, this LED indicators with different solid color also shown the NSA-250's input source status: Optical (Purple), Aux (White), WiFi (Green), USB (Light Blue), Bluetooth (Dark Blue)

7. **IR Sensor:** Receives reomte control signals.

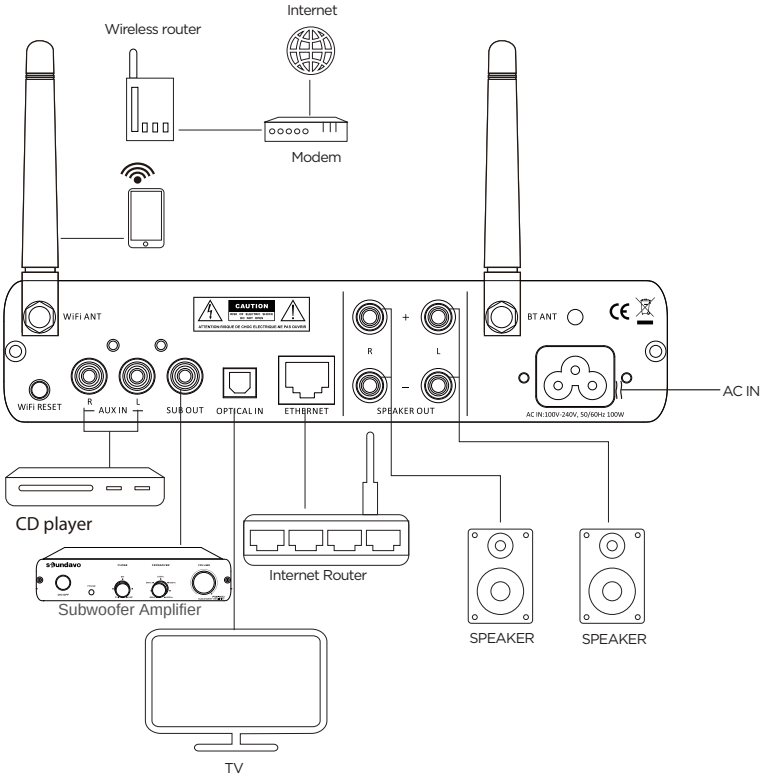
8. **USB Input:** For connecting a USB storage and using Streaming APP to play back the music files

REAR PANEL

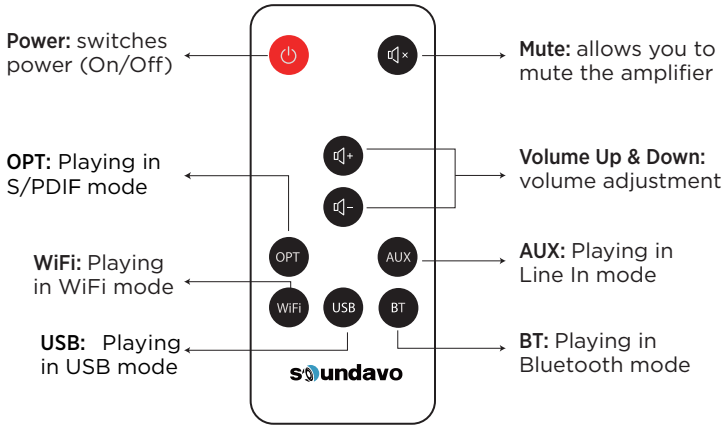


1. **AUX INPUT:** For connecting to audio device equipped with analog output, such as CD player.
2. **SUB OUTPUT:** For connecting to Sub amplifier or active/powered Subwoofer speaker
3. **OPTICAL INPUT:** For connecting to audio device equipped with digital output, such as TV or digital preamplifier.
4. **ETHERNET:** The Ethernet connection of the NSA-250 is used for the "Soundavo Player" music streaming APP for playing any music stored on connected network drives using UPnP. The default network setting is DHCP-enabled, but the NSA-250 can be configured with a static IP address using the Advanced_IP_Scanner software. The ethernet connection is the preferred method of network connection, but the NSA-250 is fully Wi-Fi certified and its advanced 2.4Ghz 802.11ac radio can be used in any installation where running a network cable is difficult or impractical.
5. **SPEAKER OUT:** For connecting to speakers.
   Note: Please do not connect the power cable to the AC wall outlet before connecting the speakers properly. The speaker has polarity (+/-), please connecting the speaker correctly.
6. **Wi-Fi RESET:** For the first time connecting the Wi-Fi streaming to the local Wi-Fi network, or change the position of NSA-250 to a new Wi-Fi network, please press this RESET button 5 seconds to configure the NSA-50 wireless network settings.
7. **Wi-Fi ANTENNA**
8. **BT ANTENNA**
   Note: For properly wireless connection, please ensure the antenna is fixed well.
9. **AC IN**

CONNECTING DIAGRAM



REMOTE CONTROL



DOWNLOAD THE "SOUNDAVO PLAYER" APP

Please download the WiFi music streaming service APP from the Apple App Store or Google play, and Search for “Soundavo Player” in the respective store:

GET IT ON Google Play

Download on the App Store

Soundavo Player

1. Select a smartphone or tablet that can be connected to a Wi-Fi ® connection.

2. Please search “Soundavo Player” on Google Play and Apple App Store to download and install the App

3. Search for “Soundavo Player” and locate the app.

CONNECT THE NSA-250 BUILT-IN STREAMER TO NETWORK

The "Soundavo Player" App is required to connect the NSA-250 streaming amplifier thru the Ethernet connector on the rear panel to your local WiFi network router, to active and set up the built-in streamer. If the "Soundavo Player" App has not been downloaded onto a smartphone or tablet then first complete the Download the "Soundavo Player" App section on page 7. Once successfully downloaded, use the following step to connect the NSA-250 amplifier's streamer to a local WiFi network (if the NSA-250 has already been connected with your local WiFi network router thru the Enthernet port on the rear panel of the NSA-250 amplifier, the built-in streamer will be found automatically)

1. Find a smartphone or tablet with the "Soundavo Player" application and connect it to the local Wi-Fi network (your smartphone or tablet device needs to be connected to the **SAME** WiFi network account as the NSA-250 amplfier)

2. Open the "Soundavo Player" App, it will show "Searching for Soundavo Player Wireless Hi-Fi System…", and press "Add Device" (see Figure 1)

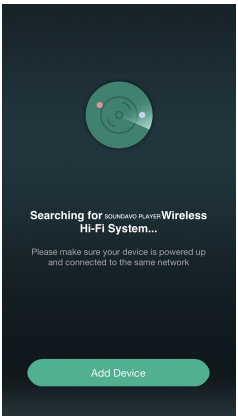


Figure 1 - Searching

3. Go to your Phone's Wi-Fi settings and select the Wi-Fi starting with NSA-250_XXXX to connect. Once it connected, then come back to Soundavo App (see Figure 2)

(Short press the WiFi Reset button on the rear of NSA-250 amplfier if the hotspot is not found)

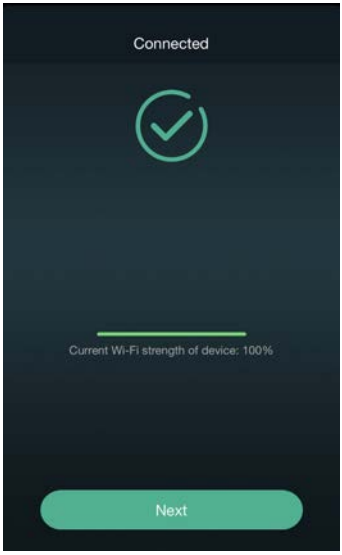
Figure 2 - Connect to NSA-250

3. Select [YOUR WIRELESS_2.4G]. Do NOT select [YOUR WIRELESS_5G] because this will not connect with the NSA-250, Enter

your local Wi-Fi® password, wait for the device to be congured. (see Figure 3)

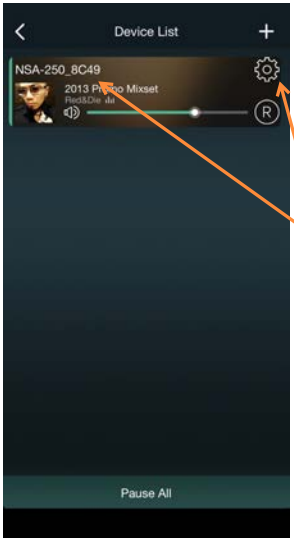
Figure 3 - Choose and Connect your local 2.4G Wi-Fi network and enter password

4.Once the NSA-250 amplifier and “Soundavo Player App” has been connected to your WiFi network, and press “Next”, then you can start to setup your device and play the music - If the connection is falled, please press the WiFi reset button and repeat the step again



SOUNDAVO PLAYER APP OVERVIEW

The "Soundavo Player" App has many unique audio features to allow a user to easily find the perfect audio and play on the NSA-250 network streaming amplfier. The "Soundavo Player" App has three screens to operate audio.

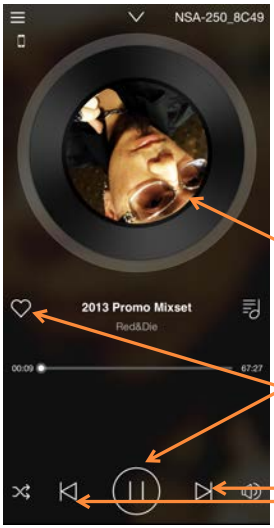


Device List Screen

Once the NSA-250 amplfier's built-in streamer is connected to the same local network and the "Soundavo Player" App is opened on the smartphone or tablet then the opening screen will be the Device List. The "Soundavo Player" App allows up to the built-in streamers of the NSA-250 to be connected simultaneously. Each connected amplifier device will display as a "Device" and play the different audio to select zone.

Rename:

Speaker(Device) Info, and Present Content Adjust Which Speaker Channels on the NSA-250 amplifier to Play Audio. Options are Stereo (LR), Left Channel (L) and Right Channel (R).



Music Player Screen

Swipe the screen to the right when on the Device List screen and the Music Player screen will be displayed. The Music Player will play selected audio from one of the audio apps found on the Dashboard. Skip forwards or backwards through playlists, play/ pause audio and save favorite stations/audio on the "Soundavo Player" App.

Display Audio Playing

Play & Pause Audio

Save Favor Audio

Skip Forwards or Backwards Through Playlists

Dashboard Screen

Swipe the screen to the right twice or click < symbol in the upper left corner on the Device List screen and the Dashboard will be displayed (see Figure 4 - “Soundavo Player” App Dashboard Screen) The Dashboard has audio apps that allow a user to search the internet for music, sports, news, podcasts and more. A user can search by Audio Apps. genre, location, and language using audio providers like Spotify, iHeartRadio and TuneIn. Access playlists and saved favorite audio.

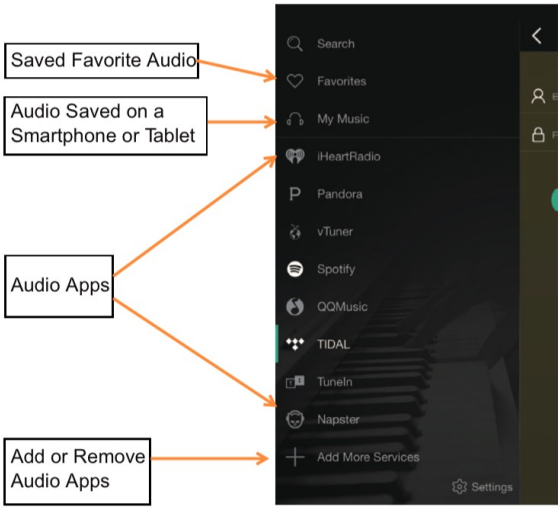


Figure 4 - Dashboard Screen

Add or Remove Audio Apps from the Dashboard Steps

1. Press [Add More Services] on the Dashboard. A screen will be displayed that shows all the available audio apps (see Figure 5 - Soundavo Player App add more service screen)

2. Select which audio apps to be displayed on the Dashboard by pressing the dot next to the app’s name and swipe the dot to the right. A green background next to the dot signals the app will be displayed on the Dashboard. Swipe the dot to the left to remove the app from the Dashboard.

3. Press the < symbol in to upper left corner of the screen to return to the Dashboard screen.

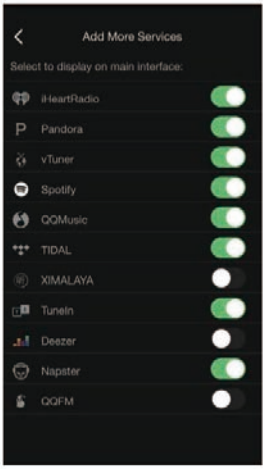


Figure 5 - Add More Service Screen

CONFIGURING STREAMING SERVICE ACCOUNTS (OPTIONAL)

TuneIn App Overview

TuneIn is one of the audio apps on the “Soundavo Player” app Dashboard. TuneIn is the easiest audio app to find music from over 100,000 radio stations and more than 4,000,000 podcasts streaming from every continent, even Antarctica. There are radio stations covering music, sports, news and talk in various languages.

TuneIn Navgation Steps

1. Setup the NSA-250 steamer to the "Soundavo Player" App
2. Open the "Soundavo Player” App.
3. Swipe the screen to the right twice or click < symbol in the upper left corner on the DEVICE LIST screen and the Dashboard will be displayed.
4. Press [TuneIn] *(see Figure 6 – TuneIn Selection).*
5. Observe the TuneIn app menu of audio selections. Choose the desired audio from local radio, music, talk, sports and podcasts. Audio selection can be filtered by location and language *(see Figure 7 – TuneIn App Menu Screen).*

For more TuneIn app information, visit the TuneIn website: https://beta.tunein.com

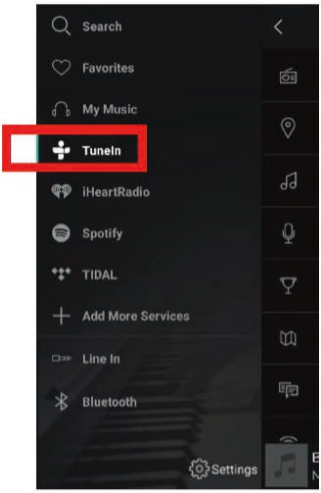


Figure 6 - TuneIn Selection

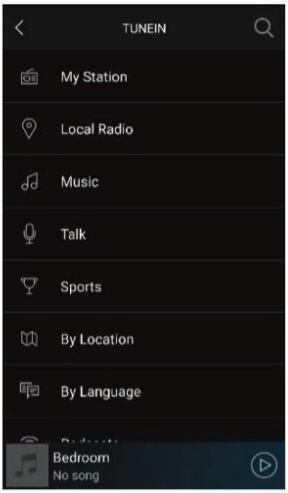


Figure 7 - TuneIn App Menu Screen

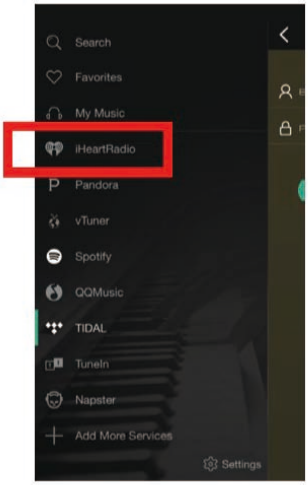
iHeartRadio App Overview

iHeartRadio is one of the audio apps on the Soundavo Player app Dashboard. The app has over 1,500 radio stations or a user can create commercial-free and all-music custom stations featuring selected songs from a favorite artist. iHeartRadio has one of the best search functions that can look up specific songs, artists and albums compared to other audio apps on the Soundavo Player app Dashboard. The search function also produces results of similar music allowing a user to easily discover new music.

iHeartRadio Navgation Steps

1. Setup the NSA-250 to the "Soundavo Player" App
2. Open the "Soundavo Player" App.
3. Swipe the screen to the right twice or click < symbol in the upper left corner on the DEVICE LIST screen and the Dashboard will be displayed
4. Press [iHeartRadio] *(see Figure 8 – iHeartRadio Selection).*
5. Login into iHeartRadio with an email address and password. If a user does not have an iHeartRadio account, press [Sign Up] and follow the displayed instructions to set up an account *(See Figure 9 – iHeartRadio Login Screen).*
6. Observe the iHeartRadio menu of audio selections. Choose the desired audio from live radio stations, custom radio stations and podcasts *(see Figure 10 – iHeartRadio Menu Screen).*

For more iHeartRadio app information, visit the iHeartRadio website: https://www.iheart.com



(Figure 8 - iHeartRadio)

(Figure 9 - iHeartRadio Login)

(Figure 10 - iHeardRadio Menu)

Spotify App Overview

Spotify is one of the audio apps on the "Soundavo Player" App Dashboard. The App has millions of tracks to select from with a friendly search function. Also a user can browse music collections of friends, artists and celebrities, or create a radio station based on specific artists. A Premium Spotify account is required when using the NSA-250 connected to WiFi ® . However, a free Spotify account can be used when using the NSA-250 airplay

Spotify Navgation When Connected to Wi-Fi Steps

1. Download the Spotify app on to the smartphone or tablet from an app store. Common app stores are Play Store, Android Market, Google App and App Store.
2. Locate and open the Spotify app.
3. Press [Create Account] and follow the displayed instructions to setup a Premium Spotify account. After the account is setup, always login into the Spotify app with the user's email address and password or a Facebook account
4. Setup the NSA- 250 to the "Soundavo Player" App
5. Open the "Soundavo Player" App.
6. Swipe the screen to the right twice or click < symbol in the upper left corner on the DEVICE LIST screen and the Dashboard will be displayed
7. Press [Spotify] *(see Figure 11 – Spotify Selection).* The user will be redirected to the Spotify app.
8. Observe the Spotify menu of audio selections. Choose the desired audio from music collections and custom radio stations *(see Figure 12 – Spotify Menu Screen).*
9. Play the audio. A music player window will be displayed.
10. Press the [Devices Available] located at the bottom of the music player – Spotify Menu Screen window *(see Figure 12 – Devices Available Selection).*
11. Select the NSA-250 option. Then the audio will be heard from the device

Return to the "Soundavo Player" App by pressing the back button on the smartphone/tablet or press the "Soundavo Player" App icon on the smartphone/ tablet.
For more Spotify app information, visit the Spotify website: https://www.spotify.com/us/

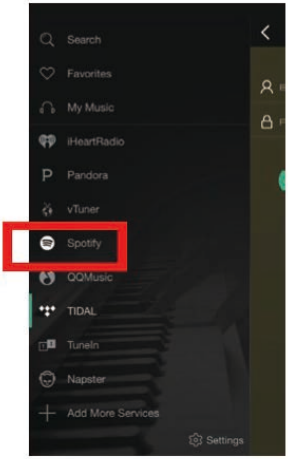
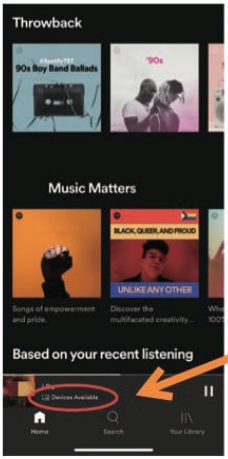


Figure 11 - Spotify Selection

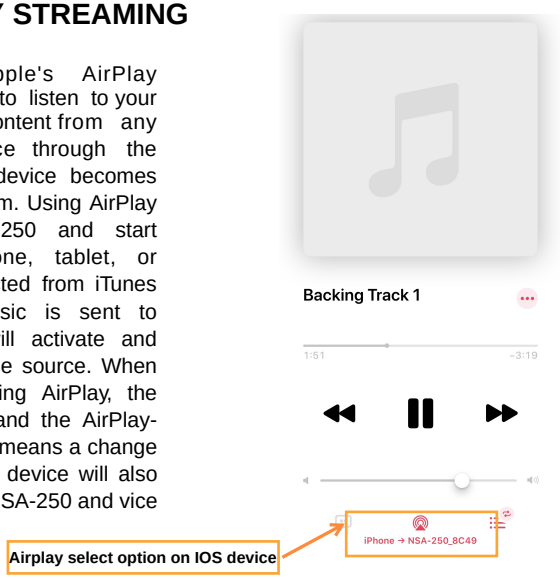


(Devices Available Selection)

Figure 12 - Spotify Menu Screen

LISTENING TO AIRPLAY STREAMING

The NSA-250 supports Apple's AirPlay technology. AirPlay enables you to listen to your iTunes library or other audio content from any AirPlay-enabled Apple device through the NSA-250 With AirPlay, your iOS device becomes anextension of your audio system. Using AirPlay will instantly turn on the NSA-250 and start playing music from your phone, tablet, or computer. When AirPlay is selected from iTunes or an iOS mobile device and music is sent to the NSA-250, the NSA-250 will activate and select the internal streamer as the source. When the NSA-250 is actively streaming AirPlay, the volume control on the NSA-250 and the AirPlay-en- abled device are linked, which means a change in volume on the AirPlay-enabled device will also change the volume level of the NSA-250 and vice versa.



PLAY SOURCE MODE SWITCH

1. Use the remote control to switch the modes: WiFi, Bluetooth and Aux input. Please note: before changing modes, have to get each mode ready

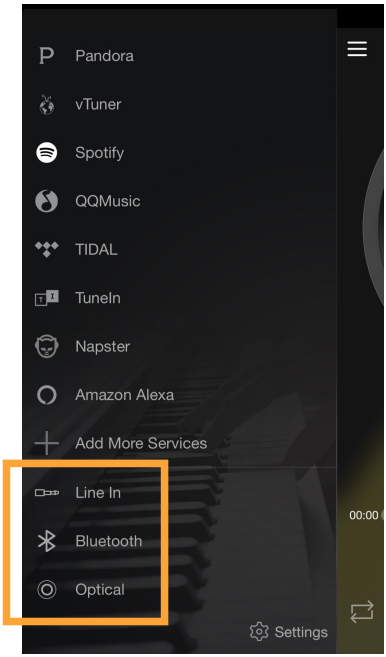
2. Changing play mode on the Soundavo Player app, choose different modes on the source playback, choose to play in Line In, Bluetooth or Optical mode. Please note, back to WiFi play mode, only need choose any online source or any music from “MY MUSIC”.

On the application, you can play music from

1) online sources from Spotify, Tidal, TuneIn, Napster and so on(some need premium account);

2) local music (local storage from mobile device-cell phone and tablets, or USB flash drive), it will show on “MY MUSIC”;

3) music playing in Aux Input (from cell phone, PC, MP3 or CD Player…), Optical Input and Bluetooth mode.



Connect and Manage Multiple NSA-250 Amplifier

A unique feature of the NSA-250 amplifier is it allows for a multi-room mode of connecting up to 4 NSA-250 amplifiers to a smartphone or tablet with the Soundavo Player app. Transmission range is dependent on the local Wi-Fi® network.

Connect Additional Amplifier Devices Steps

1. Ensure any previously connected amplifier devices are turned OFF before starting this process.

2. Setup and connect a NSA-250 amplifier device to the local Wi-Fi® network using the Soundavo Player app (see the Connect the NSA-250 device to Wi-Fi® section on page 8). This will be amplifier 1.

3. Repeat Step 2 for amplifier device 2 – 4.

4. Observe on the Soundavo Player app DEVICE LIST with amplifiers 1 – 4 displayed (see Figure 13 – Four Connected Amplifier Device Example).

(Figure 13 - Four Connected Amplifer Device)

Single Mode Steps – Assign Each Amplifier to Play Unique Audio

1. Turn ON all the NSA-250 amplifiers and connect to the SAME local Wi-Fi® network (see the Connect the NSA-250 device to Wi- Fi® section on page 8). If the NSA-250 amplifier have been connected to the SAME local Wi-Fi® network before then they will automatically connect.

2. Press and open the Soundavo Player app icon.

Observe the Soundavo Player app DEVICE LIST screen to see all the displayed amplifiers.

4. Assign an audio source to a specific device by touching the green musical note next to the amplifier device. Select one of the audio apps or saved audio on the smartphone or tablet found on the Soundavo Player app Dashboard.

5. Listen to the amplifier device for the audio

After selected an audio source, close the Soundavo Player app on the smartphone or tablet to prolong battery life since the amplifier device will continue to play as long as there is a Wi-Fi® connection.

Synch Two Soundavo NSA-250 Amplifier Devices Steps - Multiple Amplifier Devices Playing the Same Audio

1.Open the Soundavo Player app to the DEVICE LIST screen.

2. Press and hold a amplifier's icon.

3. Drag it on top of the amplifier's icon that is above it (see Figure 14 – Dragging an amplifier device Icon).

4. Release the icon and the bottom amplifier device will automatically synch to the top amplifier device

To synch additional amplifier devices repeat Steps 1 - 4 but make sure that each dragged amplifier device icon is placed on top of the first amplifier device icon.

(Figure 14 - Dragging an amplifier device Icon)

Separate Two Amplifiers Steps – Undo Multiple Amplifier devices Playing the Same Audio

1. Turn ON all the Soundavo NSA-250 amplifers and connect to the SAME local Wi-Fi® network (see the Connect the amplifier device to Wi-Fi® section on page 5). If the amplifer devices have been connected to the SAME local Wi-Fi® network before then they will automatically connect.

2. Press and open the Soundavo Player app icon.

3. Observe the Soundavo Player app DEVICE LIST screen to see all the displayed amplifier devices

4. Press and hold a amplifier device icon.

5. Drag it below the dotted line and release. This will separate the amplifier device and put it into single mode a.k.a. Solo Mode (see Figure 15– Solo Mode).

(Figure 15 - Solo Mode)

To play the same amplifier devices configuration, just shut all the amplifier devices and the Soundavo Player app OFF and then turn ON all the amplifier devices and the Soundavo Player app the next time when both are used. The Soundavo Player app will remember the amplifier device configuration when turned OFF.

To play a different amplifier device configuration or use them with a different device, unlink the desired amplifier before turning them all OFF and the Soundavo Player app. **If the user forgot to unlink the desired amplifier before turning them all OFF and the Soundavo Player app,** turn ON all the amplifier devices and the Soundavo Player app then unlink the desired amplifier devices or press the Reset button on the back of the amplifier.

TROUBLESHOOT

Problem	Possible Causes	Solution
Additional NSA-250 amplifier devices Not Connecting.	One or More NSA-250 amplifier devices ON and Connected.	Turn Other NSA-250 amplifier devices OFF Before Attempting the Connection. Once Connected the ampliifer devices will Remember the Network.
Bluetooth® Device Fails to Pair the NSA-250 ampliier device	NSA-250 amplifier device is Already Connected to Wi-Fi®.	Turn OFF Wi-Fi® or Remove the NSA-250 amplifier device from the Wi-Fi® Signal Range and Turn the amplifier device OFF. Then Turn the NSA-250 amplifier device ON, Select the Bluetooth® Mode and the Bluetooth® Device Will Pair and Connect to the NSA-250 amplifier device.
iHeartRadio App Fails to Load.	iHeartRadio App is Not Properly Operating.	Restart the Soundavo Player App and Reopen the iHeartRadio App.
Soundavo Player App Fails to Respond.	Soundavo Player App is Not Properly Operating.	Shut OFF the Soundavo Player App then Restart the Smartphone/Tablet. Reopen the Soundavo Player App.
Multi-Room Mode Setup but Additional NSA-250 amplifier device Not Connecting.	A Previously Connected NSA-250 ampliier device Fails to Automatically Connect to the Soundavo Player App.	Unlink ALL NSA-250 devices in Multi-Room Mode Then Turn ON the amplifier That Was First Connected to the Soundavo Player App. Push the Reset Button on the Back of the NSA-250 device and Follow the Steps of Reconnecting the Selected NSA-250 amplifier devices
Soundavo Player App's Search Speed for Music Stored on the Smartphone or Tablet is Slow or Non-Responsive.	A Large Number of Other Operating Apps on the Smartphone or Tablet.	Turn OFF the Other Nonessential Operating Apps.
	Soundavo Player App is Not Properly Operating.	Restart the Smartphone or Tablet and Reopen Soundavo Player App.
Spotify App Fails to Play Audio.	Spotify App is Not Properly Operating.	Unblock the Wi-Fi® Connection on the Smartphone or Tablet. Ensure the Smartphone or Tablet is Connected to the Soundavo Player App by Wi-Fi®. Also Setup a Premium Spotify Account.
Wi-Fi® Buffering is Ongoing.	Bad Quality Audio Source.	Try a Different Audio Source.
	Network Keeps Dropping.	Move Closer to Router or Install a Wi-Fi® Repeater.
Wi-Fi® Unable to Connect.	Selected NSA-250 device Still Linked to Another device	Turn ON the Other Linked NSA-250 device and Unlink the Two amplifier devices. Another Solution, Press the Reset Button on the Back of the device
	Wi-Fi® Router is Connecting at 5.0 GHz.	Change to 2.4 GHz Band.
	Wi-Fi® Router is Using Enterprise Mode of WPA or WPA2 Encryption.	The NSA-250 amplifier device Does Not Support Enterprise Encryption Mode (EEM). Either Disable EEM or Change the Wi-Fi® Router.
	Wi-Fi® Router has Disabled IGMP (Internet Group Management Protocol).	Enable IGMP on the Wi-Fi® Router.

FCC WARNING

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Any changes or modifications not expressly approved by the party responsible for compliance

could void the user's authority to operate the equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception,

which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

-- Reorient or relocate the receiving antenna.

-- Increase the separation between the equipment and receiver.

-- Connect the equipment into an outlet on a circuit different

from that to which the receiver is connected.

-- Consult the dealer or an experienced radio/TV technician for help.

To maintain compliance with FCC' s RF Exposure guidelines, This equipment should be installed and operated with minimum distance between 20cm the radiator your body: Use only the supplied antenna.