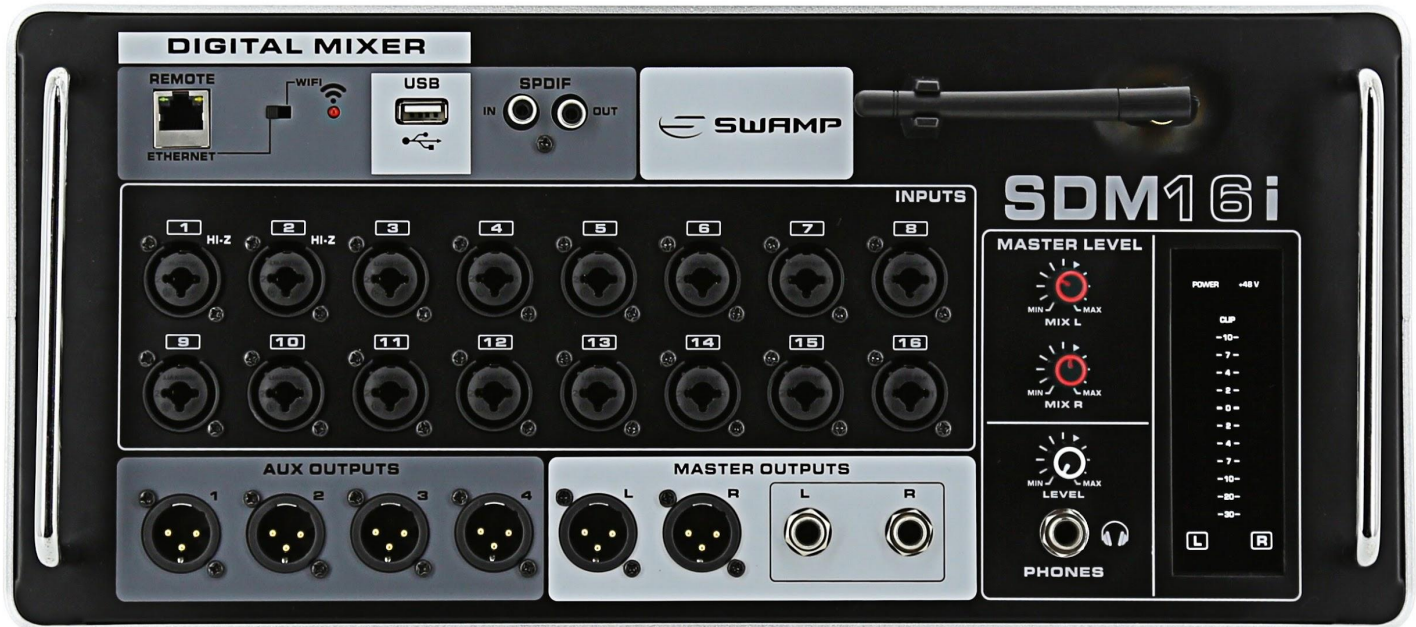# Product Manual

SDM16i

16 Input Digital Mixing Console

A mixer for the modern age, the SDM16i includes software that connects via Wi-Fi or Ethernet and can be controlled by any device on any web browser with no app to download and up to 10 simultaneous users. Intuitive mixing software with Parametric EQ, Compression, Noise Gate, 2 FX channels. Change the way you mix today.

Digital Wifi Mixer

Overview:
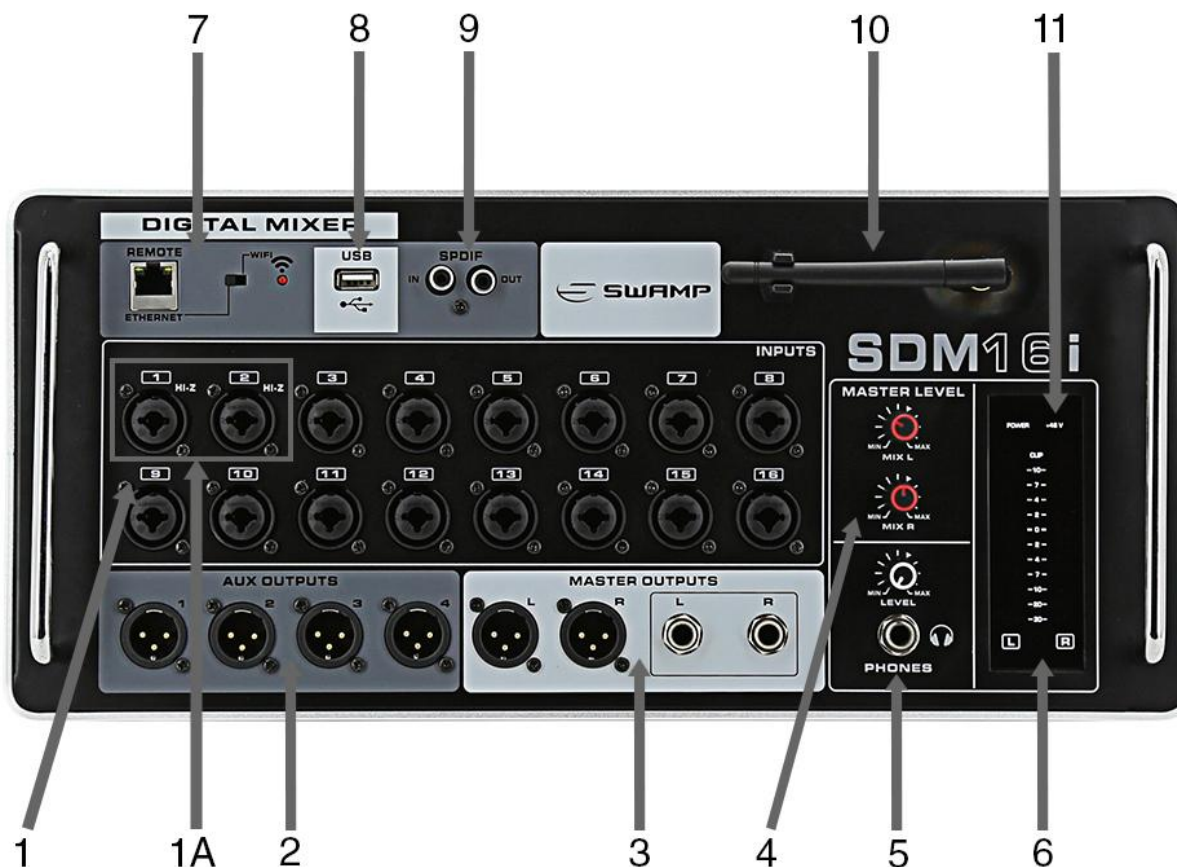
1. **Inputs 1 to 2 - Combo XLR / ¼" TS Jack - Hi-Z (¼"), Balanced (XLR)**
    The first channels have Hi-Z ¼" inputs designed for connecting guitars directly with a guitar lead. Ideal for electric-acoustic guitars and bass. The XLR input can also be used instead, for extra microphone channels.

    1A. **Inputs 3 to 16 - Combo XLR / ¼" TRS Jack - Balanced**
    The remaining channels from 3 to 16 all feature a Line Level ¼" TRS jack inputs designed for connecting any line level signal such as outputs from keyboards, electronic drum machines, DJ mixers, CD players etc. Again, the

2. **AUX Outputs - Auxiliary XLR Outputs**
    The 4 individual balanced XLR line level AUX outputs allow for separate mixes to be created

and often sent to foldback speakers, and used to send separate mix and crossover EQ setting to subwoofers. Select Pre or Post fader and apply parametric EQ and compression/limiting for each AUX channel.

3. **Main Outputs - XLR and ¼" TRS**
   Featuring balanced line level XLR and TRS output connection options, both outputting the main left and right channel signal. Connect these to your FOH (front of house), full range speakers. Use parametric EQ to tweak the final output to suit the room, and add hard compression as a form of a limiter to squash peaking signals.

4. **Main Output Volume Control**
   Set the main output to the unity setting at 1 o'clock, or tweak to suit your speaker system or venue. Also maintains a hands-on option to control the main output if required.

5. **Headphone Amplifier and Volume Control**
   Connect any headphones into the headphone amplifier ¼" TRS output to monitor the main output, or change settings to monitor Solo mode selected channels and even FX wet signals so you can get than reverb setting perfect. Utilising Solo functionality, the headphone channel can also be used as an additional AUX output, but be mindful to setup the headphone output as to not overload a line level input (i.e. usually a 2 o'clock setting is enough).

6. **LED Meter Strip**
   Clearly lit LED lights flash to indicate signal level for the main output. With LED 11 frequency levels going up to +10dB. Will display the same as the main output within the software.

7. **Wireless and Wired Connectivity**
   Flick between using the in-built W-Fi hotspot or use an Ethernet cable to connect to an external router, existing network or seperate hotspot device. The plug and play ability of the Wi-Fi hotspot, with reliable range of 20m is great for on stage performers and small venues. Larger venues and live mixing engineers should consider connecting to existing networks or network extenders with a wider Wi-Fi range. A device connected to a router via ethernet also gives a completely wired connection that eliminates any potential for any software dropouts.

8. **USB Port for Playback and Stereo Recording**
   A USB stick or flash drive can be connected to either playback music into the individual player channel of the mixer, or record the main left and right signal from the mixer. Also very useful when mixing yourself as a performer, as you can for example record a take of verse and then move into the audience area and playback the recording to hear the mix and even make EQ/compression adjustments in the player channel to tweak the sound live, which you can then replicate on the appropriate channels.

9. **SPDIF Digital Audio Input and Output**
   Interface with any digital device that has SPDIF input/outputs. The SPDIF input has its only channel within the mixer software, again with EQ, compressor setting options. The SPDIF

output is of the main left/right channels.

10. **Antenna**
    A fixed antenna that can we raised when in being used in Wi-Fi mode or collapsed and locked in when not in use.

11. **48V Phantom Power LED**
    Indicates that 48V phantom power has been selected for at least one of the channels. A clear icon also displays on each channel in the software when phantom power is selected.

Hookup Example:
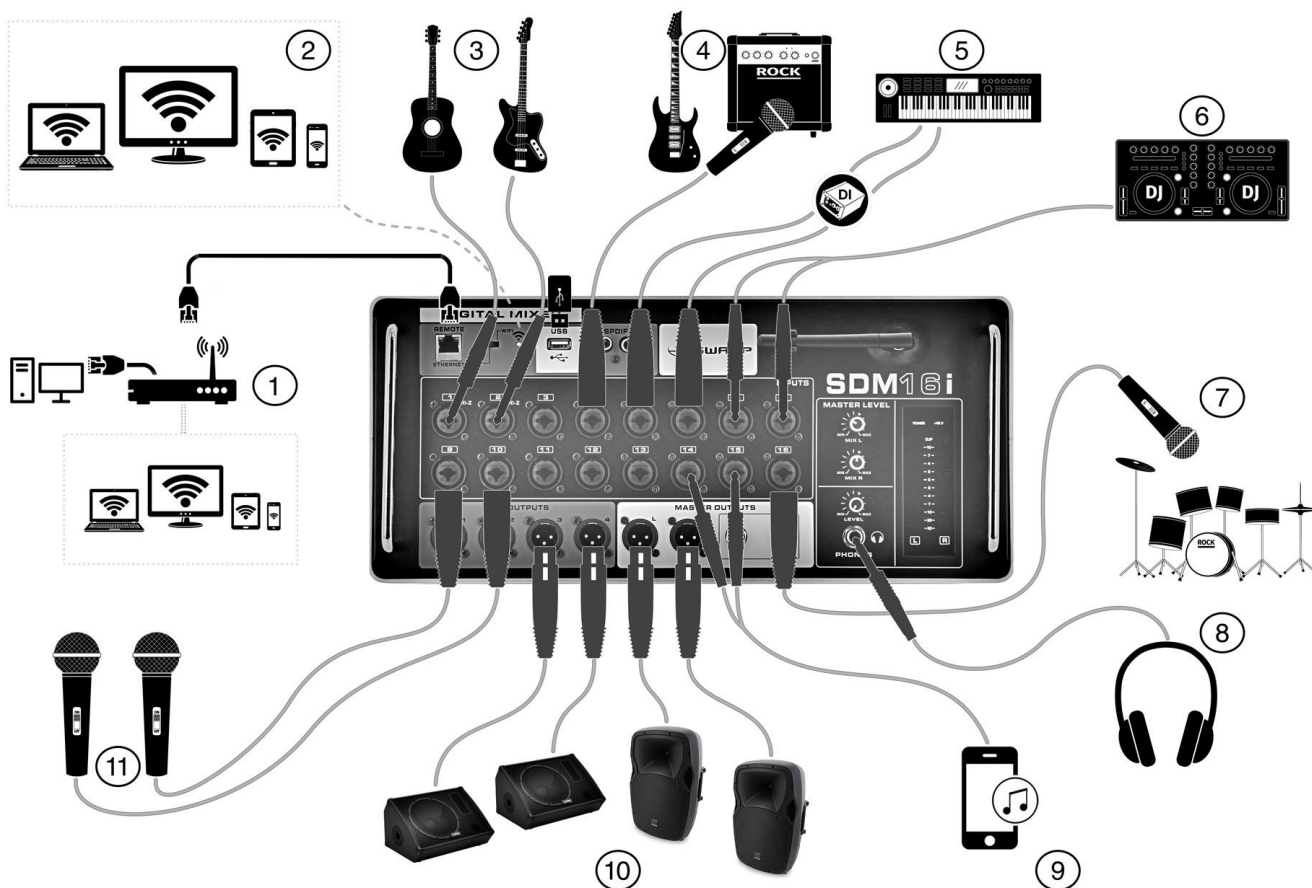
1. **Wired or Wireless - Ethernet Connection via Router**
   Connect an ethernet/network cable to your router to enable control of mixer from any device

connected to the router's Wi-Fi, including both wired and wireless hotspot connections. The SDM16i software runs on HTML5 is accessible through any modern browser. User maintains access to the internet connection of the router.

2. **Wireless Wi-Fi Hotspot Connection**
   Switching to WiFi mode turns on the inbuilt Wi-Fi router hotspot inside the unit, enabling any Wi-Fi enabled device to connect to the mixer wirelessly, without the need for an external router.

3. **Hi-Z Instrument Inputs**
   Channels 1 and 2 feature Hi-Z / high impedance inputs on the ¼" jacks, acting like an in-built DI box, allowing direct connection of guitars and instruments with hi-z pickups. Suited for connecting acoustic/electric and bass guitars, though just like for DI's be mindful to turn your instrument volume down from 10, to ensure you are not overloading the input, especially for active bass guitars.

4. **Electric Guitar with Amplifier Mic**
   While the electric guitar could be plugged in directly to the Hi-Z inputs on channels 1/2, a better way to capture the sound of your sound for mixing through the PA, is to mic up the guitar amp to capture the full sound of your rig. Using an instrument mic like the iSK DM-57 is a great option.

5. **Keyboard via DI Box or Direct ¼" Connection**
   The combo jacks of channels 3 to 16 feature ¼" TRS line level inputs, suitable for connecting most keyboards via their ¼" jack outputs. However, due to a keyboard's connection to 240V wall power, ground hums can arise especially if the mixer and keyboard are connected to different power circuits. By using a passive DI box such as the SWAMP DB-1, a transformer is adding to the signal removing ground loops while also converting the signal to balanced, mic level for input into the mixer using XLR cables.

6. **DJ Mixer - ¼" Line Level Inputs**
   The line level outputs of DJ mixing desks, either RCA, ¼" or XLR, can be connected directly into the balanced ¼" TRS inputs (sitting in the middle of each combo XLR/Jack connector). Any device outputting a line level signal can be connected in this way. Utilise our wide range of ¼" TRS to RCA/XLR/Jack linking and patch cables. Pan the channels left and right respectively, to get true stereo sound.

7. **Mic Up Drum Kits**
   With 16 channels, each with a mic preamp, there is no excuse not to mic up the drum kit. In-built dynamics and EQ on each channel allows for detailed mixing and you can save the scene once setup, so consider a full mic setup. Each channel as 48V phantom power for overhead condensers.

8. **Headphone Monitoring**
   With a physical volume control, use to monitor your signals before sending them through the

main outputs. Using the solo functionality allows for monitors of individual channels, or groups of selected channels. Can also be used as additional output if required, though turn down output volume to 3 o'clock if connecting to line inputs on speakers.

9. **Smartphone / Laptop Audio Playback**
   Plug in any smartphone, tablet, laptop or any device with a 3.5mm headphone output. Using a 3.5mm TRS to dual ¼" cable a user can connect to 2 channels and by panning each left and right in the software a true stereo input is created.

10. **Foldback Monitors and FOH Speakers**
    Connect your FOH (Front of House) speakers to the Main left and right outputs. Balanced XLR and ¼" TRS outputs are given, wired in parallel, allowing using to the connector of preference. The extra output enables the main signal to be sent to additional speakers or devices. Each of the 4 AUX balanced XLR outputs carry signals that can have uniquely mixed signals sent to foldback monitors or in-ear systems. Use balanced inputs on your speaker where possible for a balanced signal connection to avoid noise picked up along the cable for mixer to speaker.

11. **Microphones**
    Vocal microphones can be connected to any channel from 1 to 16, dynamic and condenser microphones are supported with 48V phantom power on each channel.

Control Software:

Utilising **HTML5 technology**, any device with a modern web browser can use the SDM16i control software. That means and smartphones, tablet, laptop or desktop, whether they are Windows, MAC or Linux, all simultaneously with up to 10 users at a time.

Requiring **no app to download or install**, the software is reliable, highly stable due with no app that can crash. If you close the browser manually or it happened to close unexpectedly, the mixer will continue to operate with its prior settings to the interface page being closed.

Access to mixer control page is through a simple URL that is first loaded through a fixed IP Address, and be latter recalled in your browser by typing any part of 'WIFI-MIX' into the URL bar, or simply save a bookmark link.

Main - Channel Overview

TBA - IPAD / IPHONE size selection

1. Select Display Format Style

iPad display format is designed for larger screens, and has a 'split screen' setup where faders are always viewable on the bottom half of the screen. iPhone format is for smaller screens, where there is no split screen format and user needs to toggle between the display for 'editing' and the main display for controlling multiple faders.

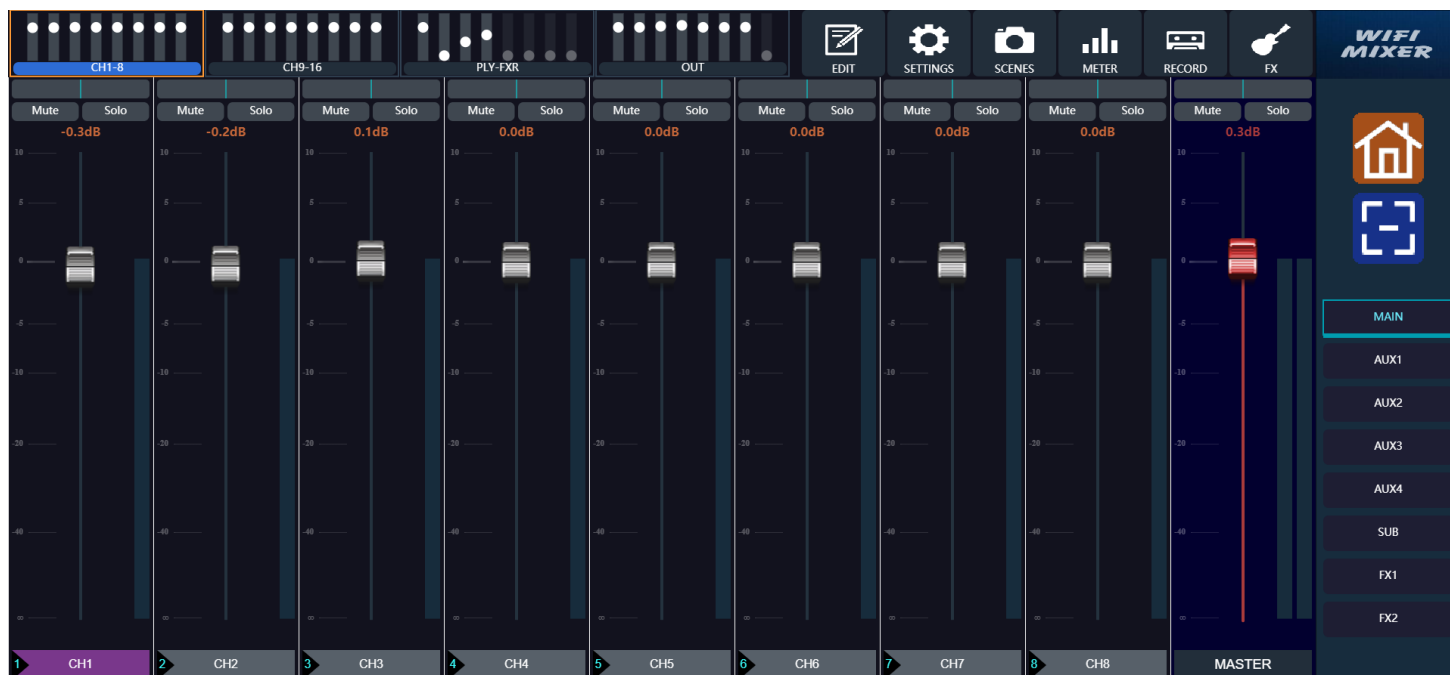## 2. Touch CH1-8 to view the channel strips for channels 1 to 8

This view shows the larger display size suited to desktops, tablets and iPads. Allowing a 'split screen' where the bottom half shows faders top half available for other features and channel control options. Ideal if fast access to faders is required.

3. **Touch CH9-16 to view the channel strips for channels 9 to 16**

On each channel strip (1 to 16) the user has the ability to touch on each of these action buttons; Gain, Phantom Power, Polarity, Channel Linking, Noise Gate, Compressor, Sends, Panning (Left / Right), Mute, Solo, and Fader.

The user can also touch anywhere on the channel strip to select the channel, before proceeding to the edit page which displays larger buttons and colour coding options.

4. **Touch BLUE ARROW button to expand or collapse the channel faders**
   To allow more precise fader control, toggle the expand/collapse button.

Phone Display Format:

5. **Phone Display Version - Touch CH1-8 to view the channel strips for channels 1 to 8**
   Similar to the larger screen display option but without the 'split screen' ability and layout is better

suited to smaller touch screen devices. Options are down the right-hand side and click on the channel name/number to enter edit mode.

Phone Display Format:
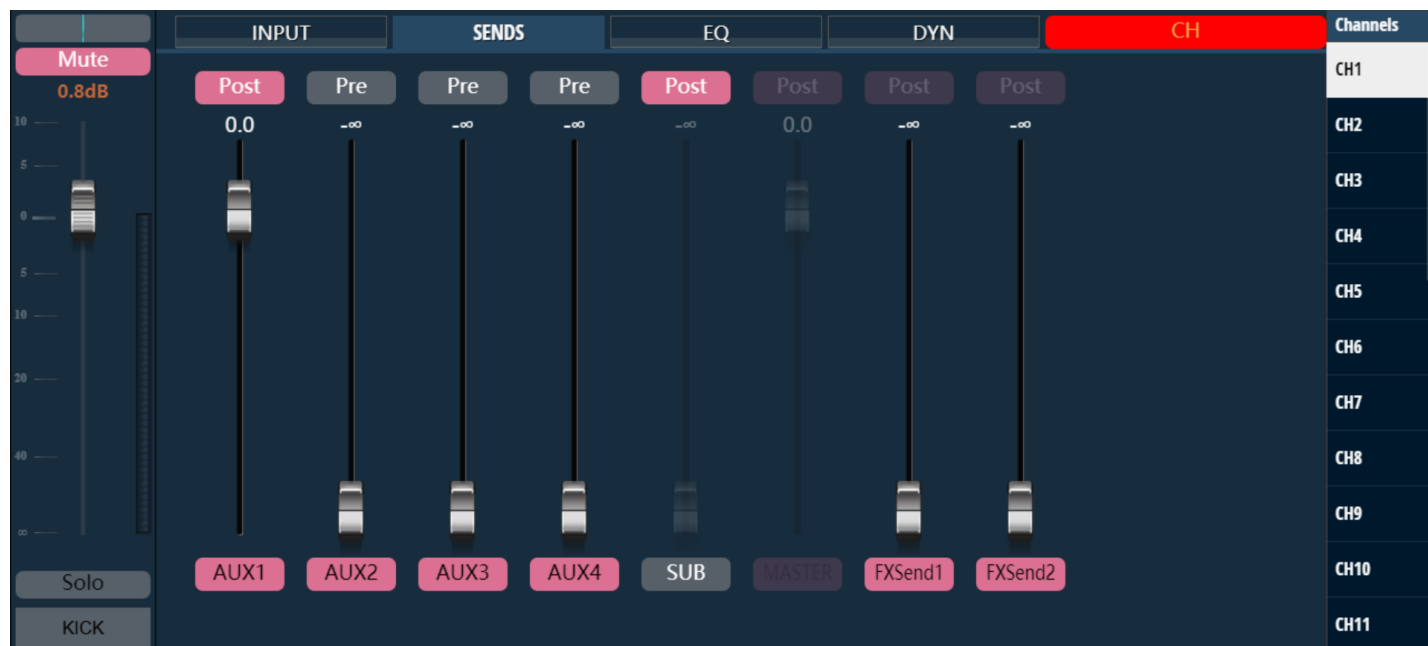
6. **Phone Display Version - Touch CH on top bar to view channels selector on side-bar**
   Ideal when add settings to multiple channels allowing a simple way to quickly jump through channels while maintaining the same view.

Channel Strips Options

7. **Touch EDIT on the top menu to enter edit mode**
   The channel currently selected channel is displayed at the top-right of page, touch on the fader section to change channel. Adjust the gain with the fader and select other options including colour coding for the channel strip. Move easily to adjust Sends, EQ and Dynamics though the buttons below the channel number.

Phone Display Format:
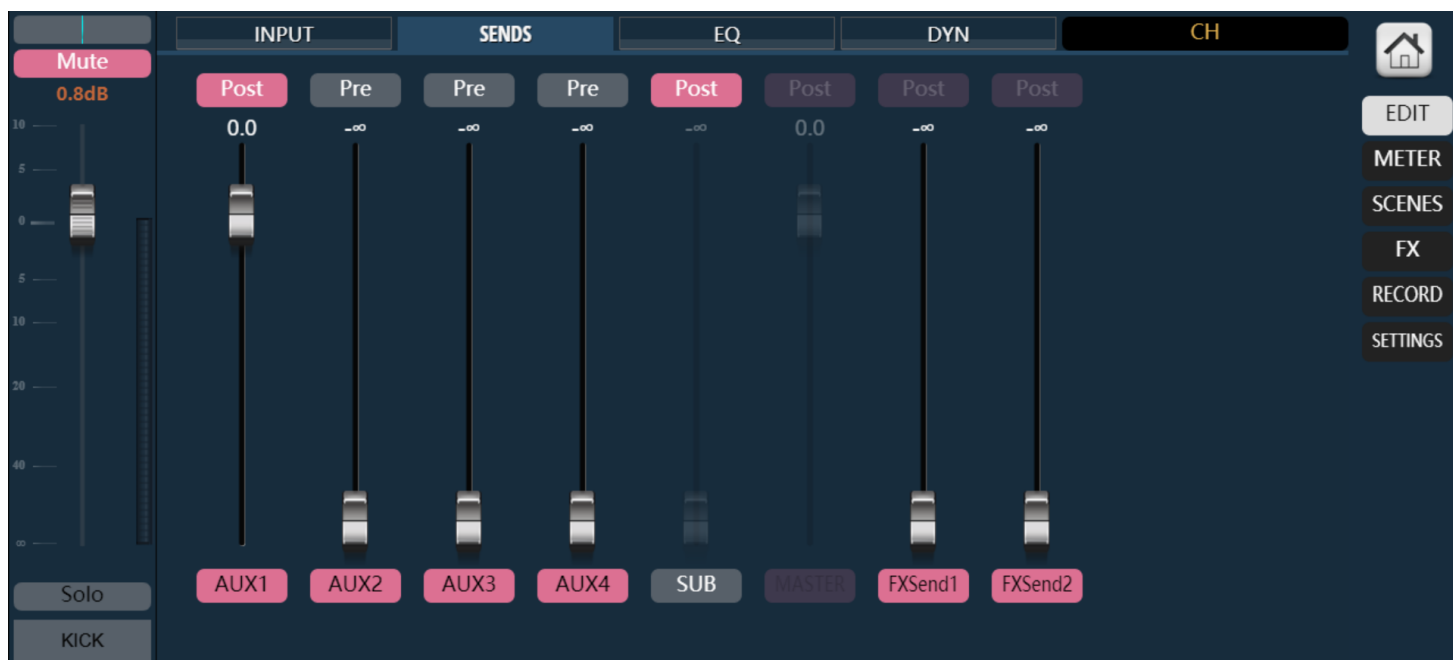
8. **Touch SENDS to adjust the channel volume sent to AUX and FX sends**

   Control the volume of each channel, sent to each of the 4 AUX outputs and 2 FX processors. On/Off control to mute the output, and Pre/Post button for the AUX channels to choose whether the main channel fader affects the output. Also select to add the signal to the SUB (internal group) channel.

example iphone format image:
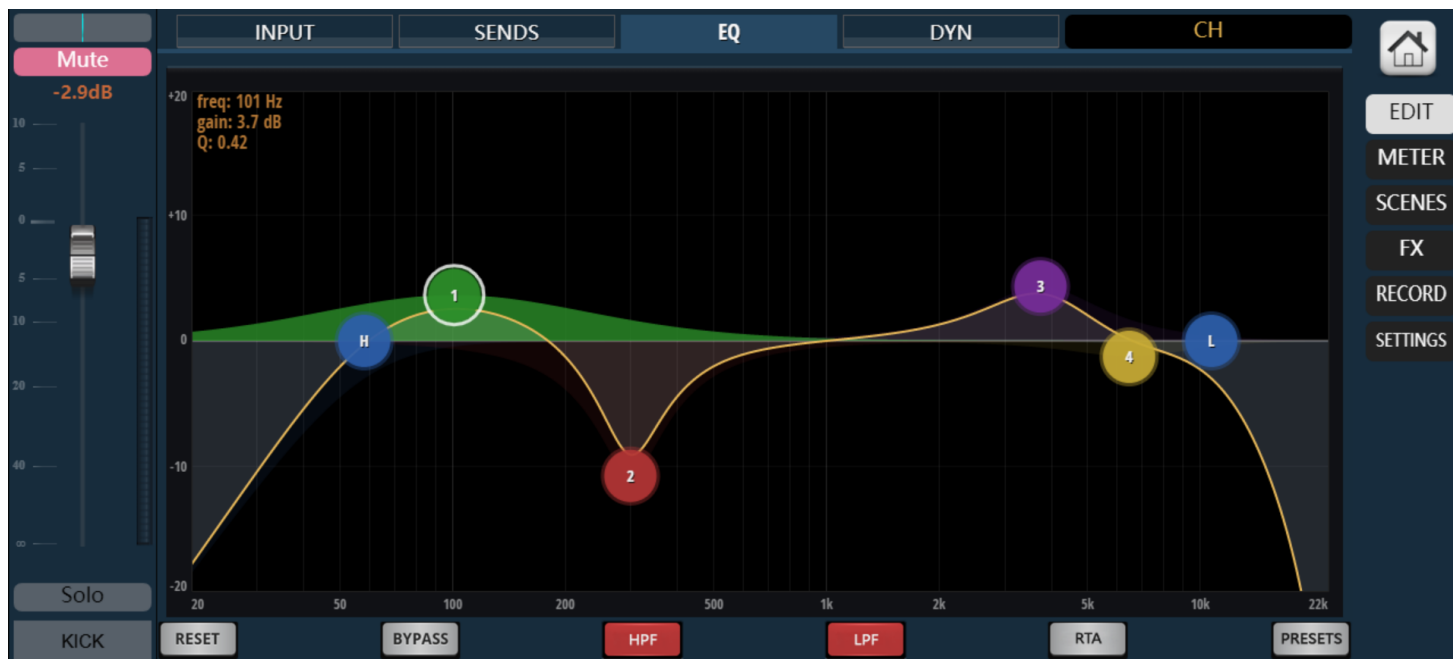
9. **Touch EQ to adjust the Parametric EQ settings for each channel**

Use one of the factory preset settings, or modify each of the 4 parametric EQ points and HPF and LPF to your own desire. Once your done, you can save your ideal setting and recall for future use. To change the Q value, currently a touch screen must be used. Use 2 fingers and move inwards to outwards to adjust.

example iphone format image:
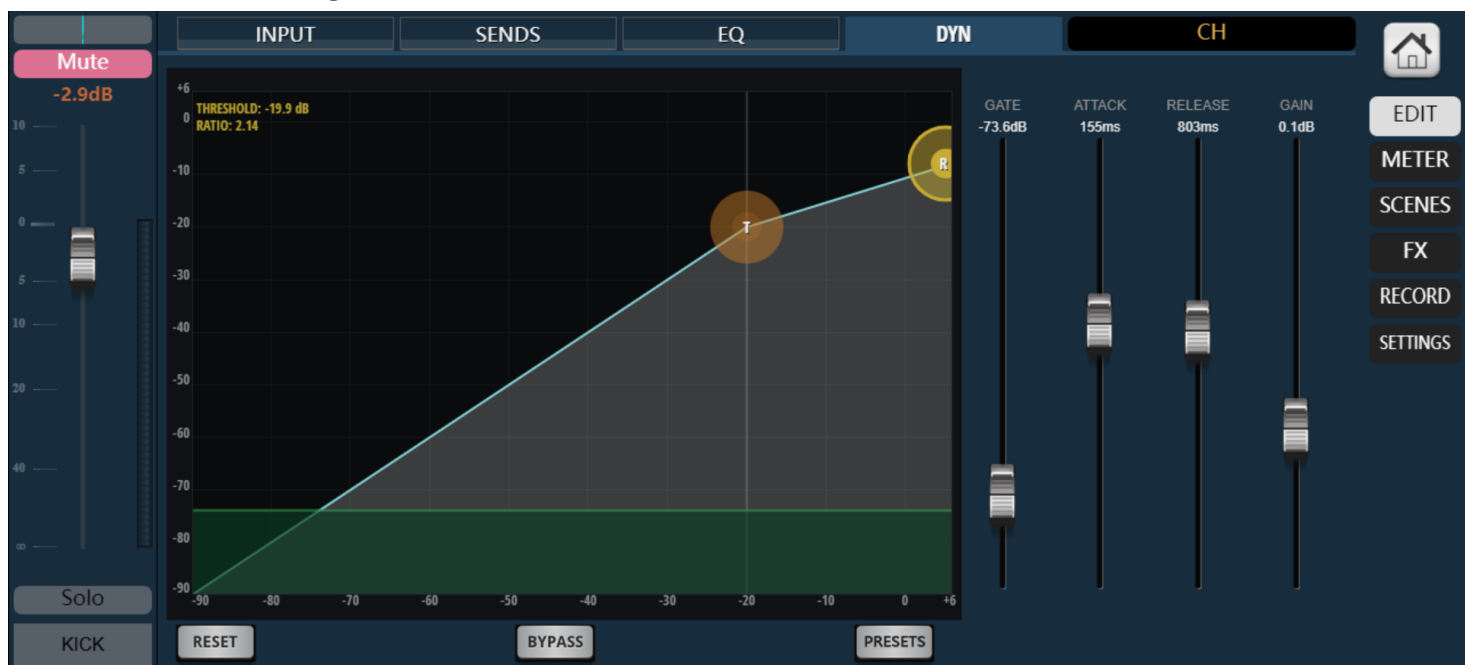
10. **Touch DYN to adjust the Dynamics settings for each channel**

Use one of the factory preset settings, or modify the Noise Gate and Compression to suit your instrument or venue. Simple and effective noise gate controlled by a single fader. Signal blends in smoothly once volume exceeds the date dB. The compressor has threshold and ratio settings are changed by touching/clicking and dragging the 2 points on the display. Attack and release settings are then adjusted with faders, and a final gain fader usually to provide 'make up gain' for heavily compressed signals.

11. **Touch OUT to adjust the Output channel options**

Touch on any of the faders to select the output channel (MASTER selected above). EQ and Dynamics can be added to the MASTER, AUX and FX outputs. (Note, HPF and LPF settings not available in EQ settings for outputs)
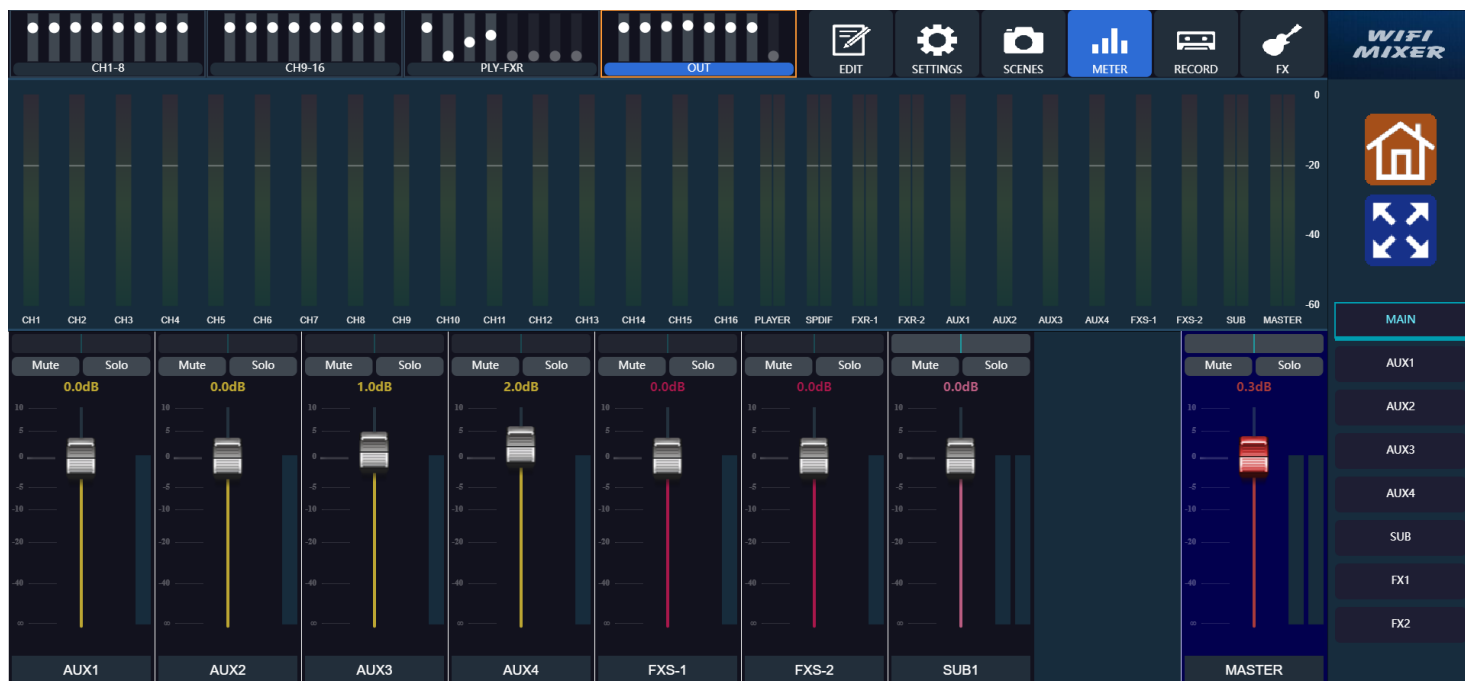
12. Touch METER to view the signal levels

Touching METER will display the signal levels for every channel in the top half of the display section. Channel faders displayed at the button, correspond the channel strip selection from top menu (i.e. OUT is selected, so output faders displayed).
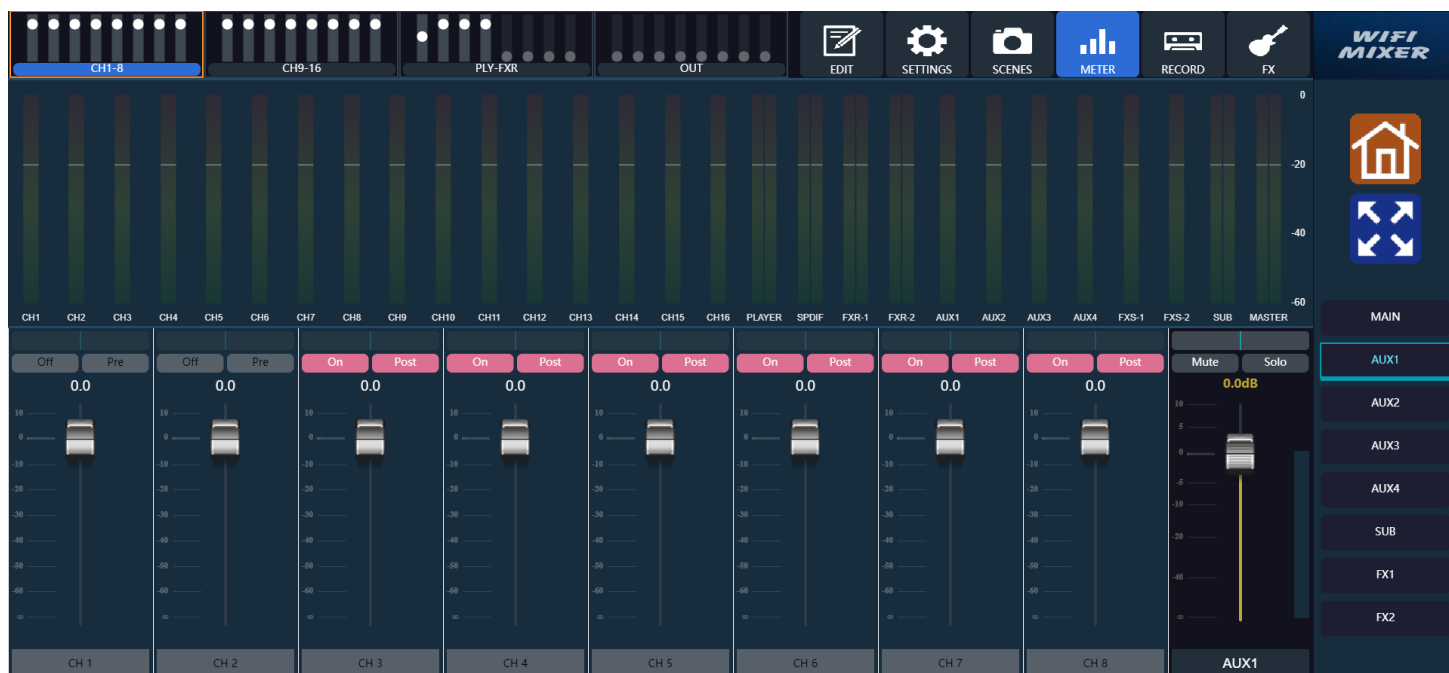
13. **Touch AUX1 to change the Fader displayed on right-hand side-bar**

The 8 buttons displayed on the right allow the user to easily change the output fader that is displayed on the very right of the channel strip.
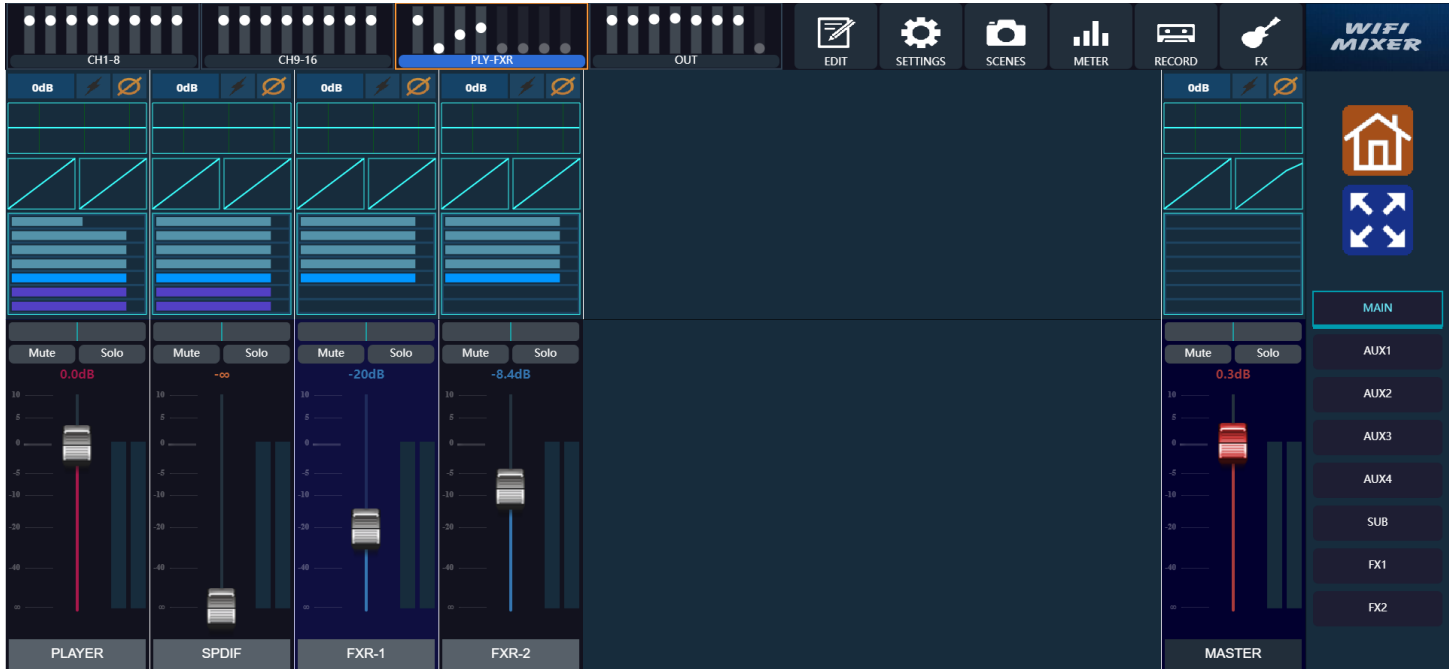
14. **Touch PLY-FXR to adjust the USB Media Player, SPDIF and FX channel options**

All the controls possible on channels 1-16, are also available for the USB media player, SPDIF input and FX processor returns.
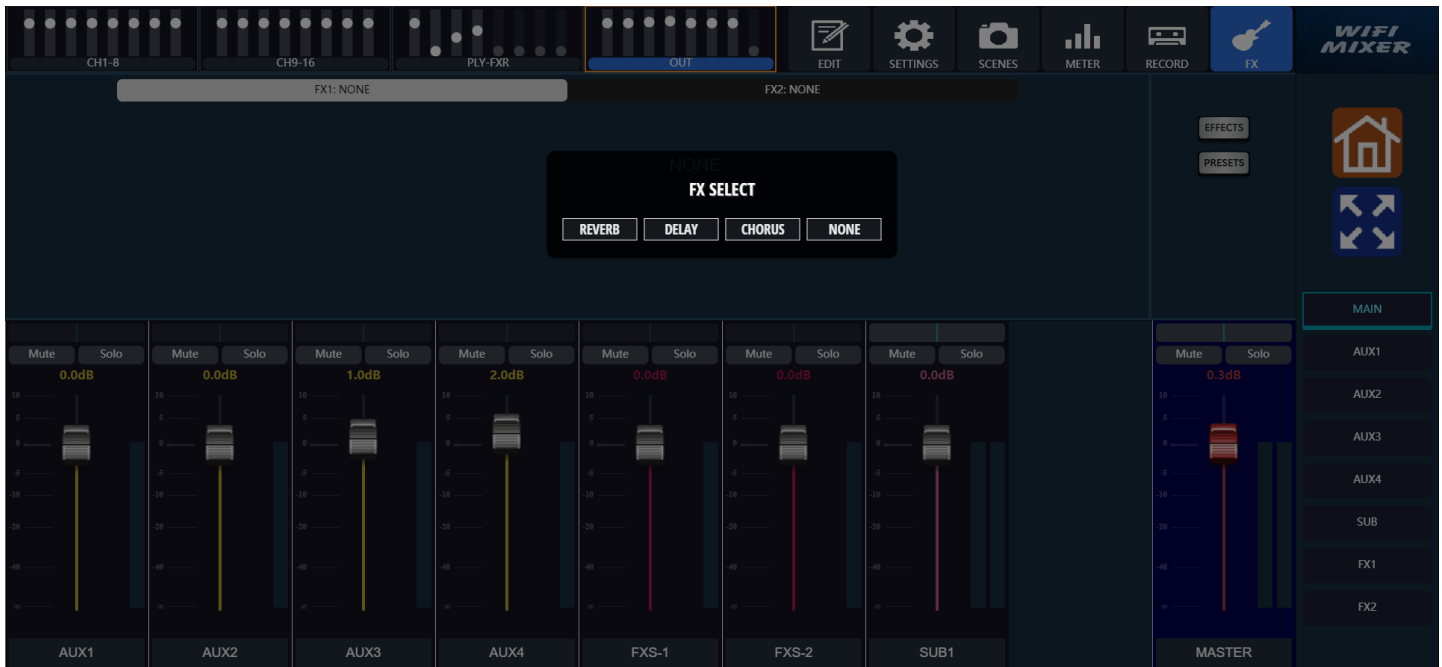
15. **Touch FX to adjust the Effects settings**

Select any channel, then touch on the FX button from the top menu to load the effects processor options for that channel (MASTER channel selected above). Select whether to use the FX1 or FX2 effects engine and bus. Then touch on EFFECTS button on the right side menu to load the 3 FX options; Reverb, Delay and Chorus.

16. **Touch PRESETS to select factory Preset Effects**

Similar to EQ and Dynamics, a factory preset options can be selected modified and saved as User setting, for later recall. Above screenshot shows a range of the factory Reverb settings.

17. **Touch PRESETS to select factory Preset Effects**

Above screenshot shows a range of the factory Delay settings. Note that using the Solo mode for FX, you can monitor the 'wet signal' (effected signal only) in headphones to get the ideal delay sound.
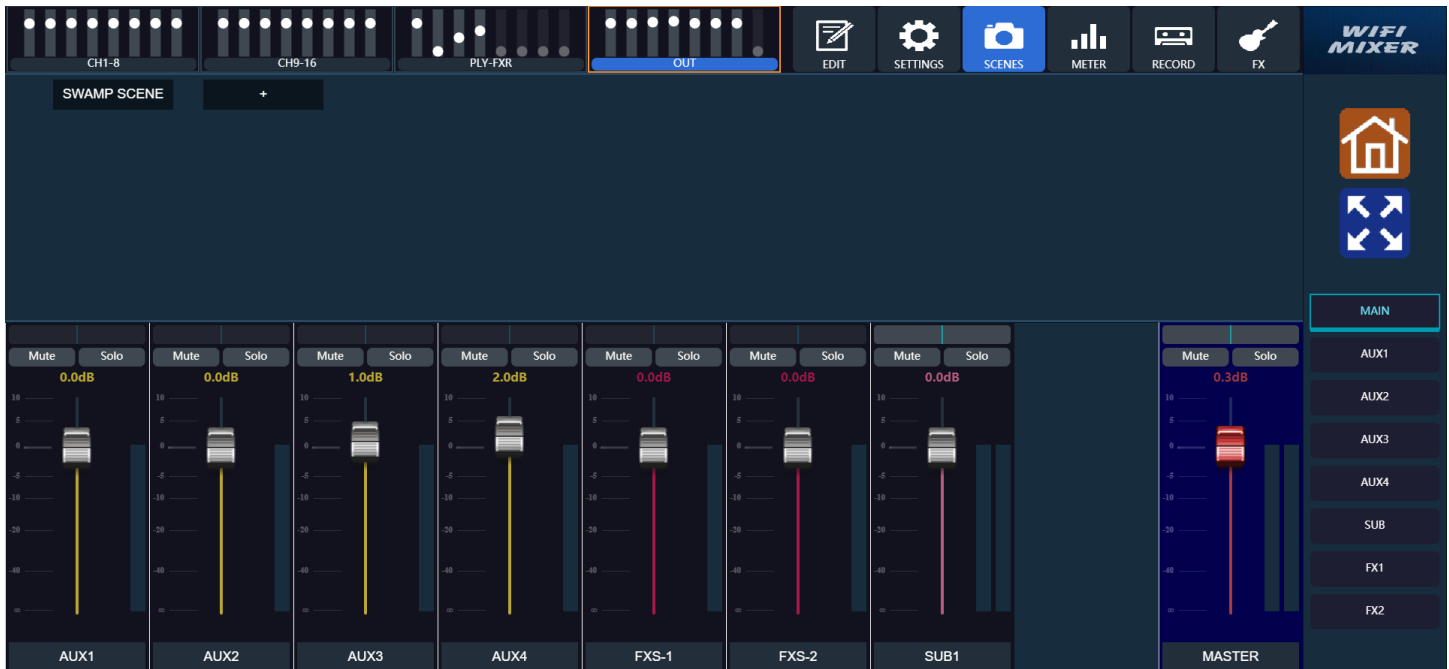

18. **Touch SCENES to save or select previously saved scenes**

Scenes allow the user to save settings from all across all the mixer for later recall. This allows bands create their ideal mix and then to save a scene for recall when playing with the same setup and/of venue. Likewise, venue using the SDM16i as an in house mixer can save scenes for different types of acts, to give some consistency to sound and prevent musicians from playing too loudly of harshly.
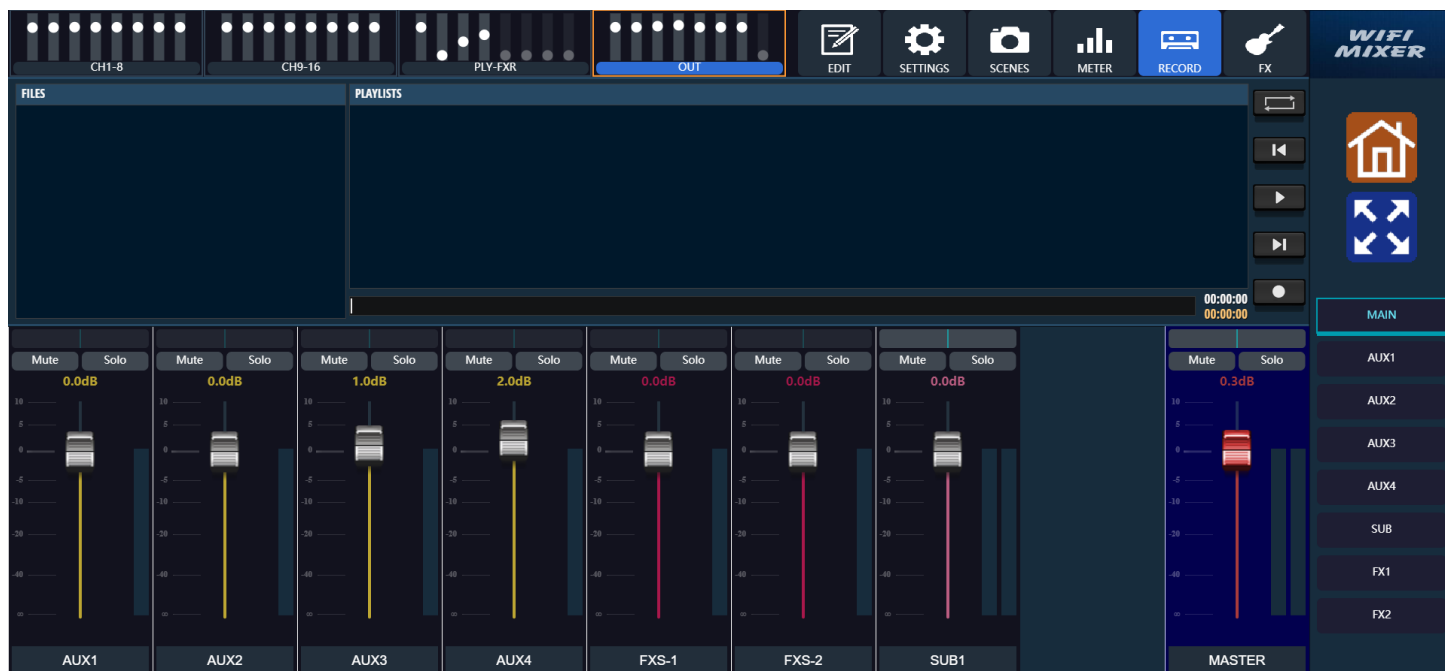
19. **Touch RECORD to adjust playback and recording options through USB stick**

View the audio files on the USB stick and select tracks for playback. Also hit the record button to start recording the master left and right outputs as a stereo track to the USB stick.
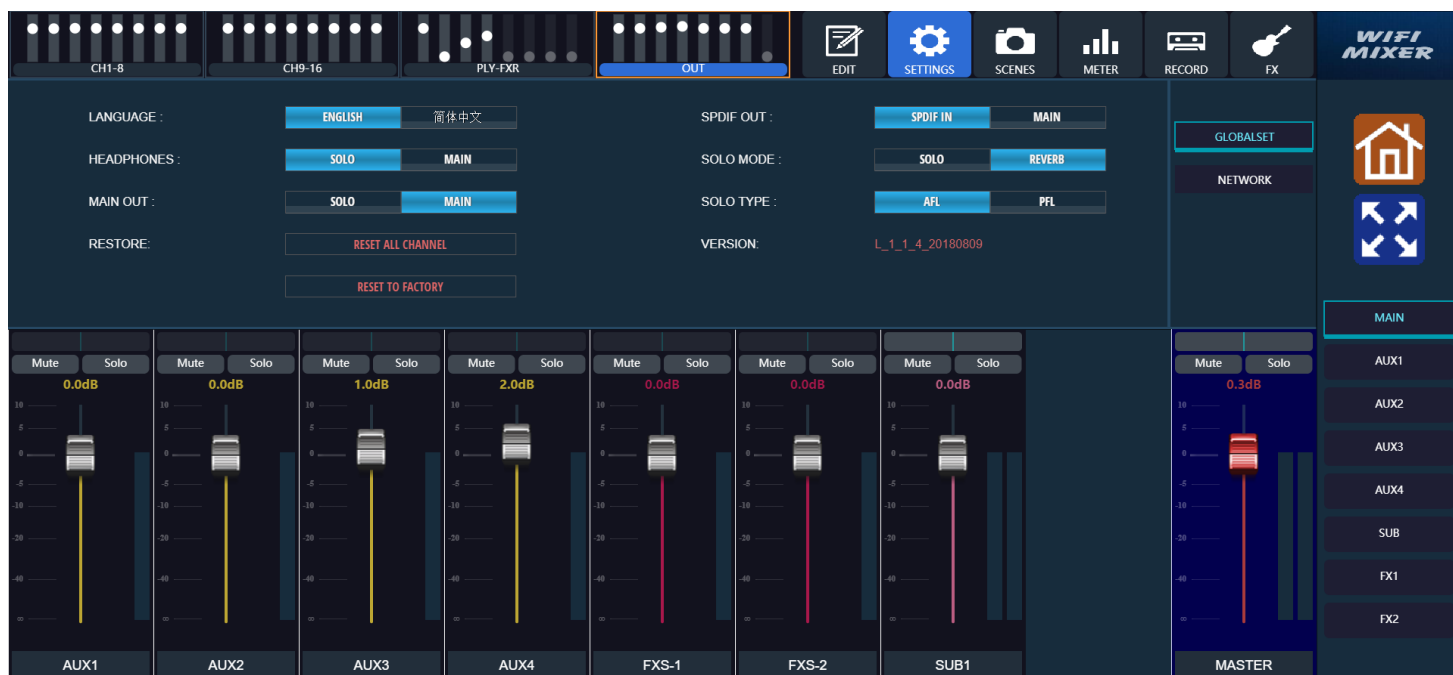
20. **Touch SETTINGS to adjust main user options and preferences**

Options include adjusting SOLO monitoring type from Pre to Post fader, the main output to only send if SOLO selected and even option to monitor the reverb signals exclusively. Options to clear/reset all channel settings, and factory reset. Firmware version shown to cross check against latest software versions that will be available over time with updates and improvements and available for **download on this page**.
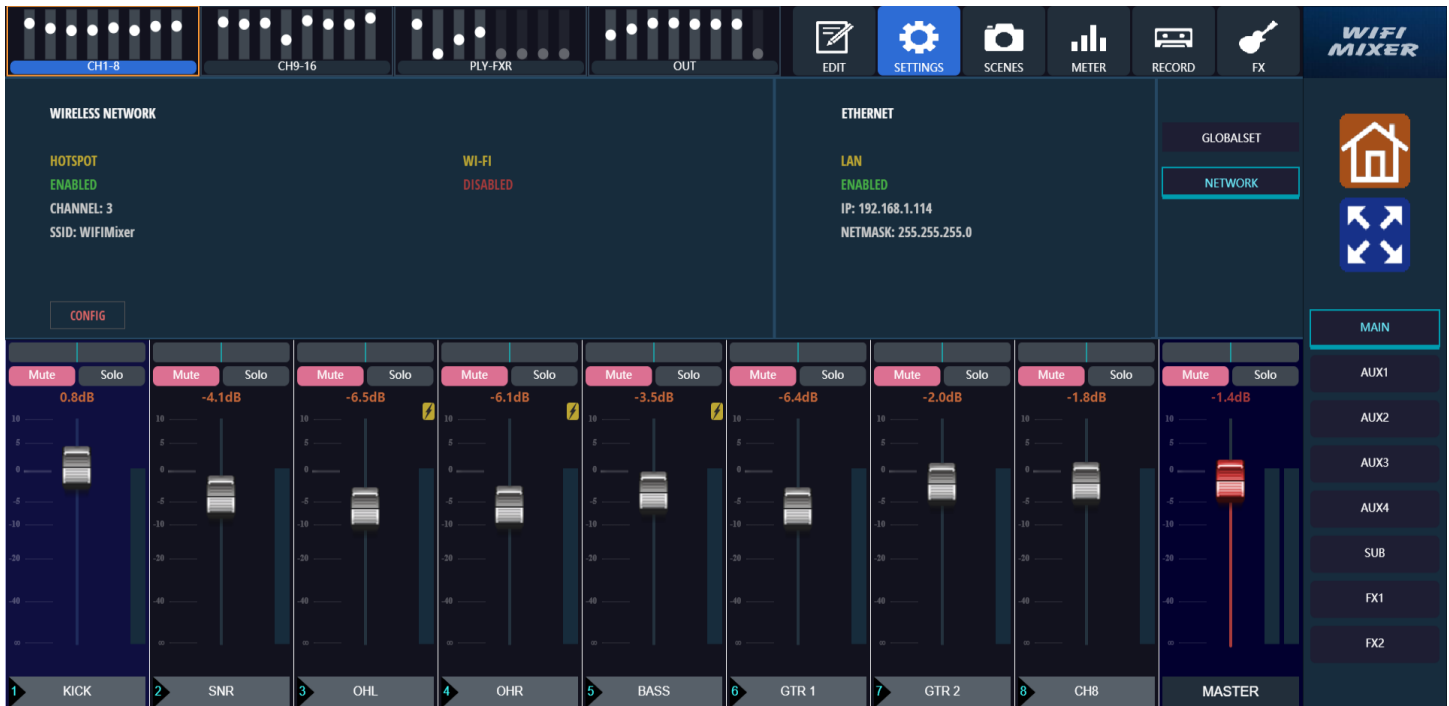
21. **Touch NETWORK to view network settings**

Displays the wireless and ethernet network information and parameters. Touch/click on Config to enter the network settings configuration pages.

22. **Touch CONFIG to adjust network settings**

Selecting the config option will direct to this Network State page where current network information is displayed.

23. **Touch Wi-Fi Configuration to view/adjust Wi-Fi settings**

On the page it is possible to change the SSID or Wi-Fi network name, and also to add password protection using the WPA2 security access option.

24. **Touch NETWORK to view/adjust network LAN settings**

Configure the LAN network settings, including ability to change the IP address from the default, allowing the ability to secure the device from unwanted access.

Software Notes:

1. **SUB Channel** - designed as an additional internal BUS to allow multiple channels to have signal levels controlled by a single fader. With ON/OFF functionality (no fader control), simply select SUB send (will light up in PINK) to send whatever signal would normally be sent to the main output, to the SUB channel instead, with a Pre or Post fader option (i.e. with Post selected, only signals with fader up are sent to SUB channel). Then use the fader control of the SUB on the outputs page to add the SUB signal back into the main mix.

Connectivity:

The SDM16i has an internal Wi-Fi router capable of outputting a hotspot that any Wi-FI enabled device can connect to. It is also equipped with an Ethernet port for connecting to an external router, then allowing any device connected to the router to access the SDM16i control software. A switch on the mixer toggles between Ethernet and Wi-Fi (aka Hotspot) mode.

Wi-Fi (aka Hotspot) Mode:
With the connectivity switch flicked to the left, the device enters Wi-Fi mode where a hotspot is created for devices to connect and access the mixer control software through any web browser. The user simply enters the IP address value 192.168.2.1 to load the mixer control page. Note, that while connected to a Wi-Fi network, many smartphones will automatically look to use the Wi-Fi for a source of internet meaning internet access is not possible whilst connected to the mixers hotspot, even with mobile data turned on. Changing settings on most phones can allow mobile networks to be used for internet browsing, while maintaining connection to the mixer. Up to 10 users can connect at any one time.

Ethernet Mode (router):
With the connectivity switch flicked to the right, the device enters Ethernet mode where cat5e or cat6 network cable is connected to an external router to enable connection through the router's Wi-Fi network. This means any device connected to the router can access the mixer control software through any web browser. This includes desktop computers connected via network cable to the mixer, and any smartphones or tablets that connect via Wi-Fi to the router. In this case, the user simply enters the IP address value 192.168.1.114 to load the mixer control page. Up to 10 users can connect at any one time.

Ethernet Mode (direct):

With the connectivity switch flicked to the right, it is also possible to connect directly from the mixer to an ethernet port on a computer. To achieve this setup users firstly need to adjust the settings of the ethernet adapter within the windows/mac operating system settings. Go to the 'properties' of the network adapter and change to use an IP address of 192.168.1.10 and Subnet mask of 255.255.255.0. Check the below image for the steps / pages involved for entering this configuration on windows 10 ([click here for larger version](#)).
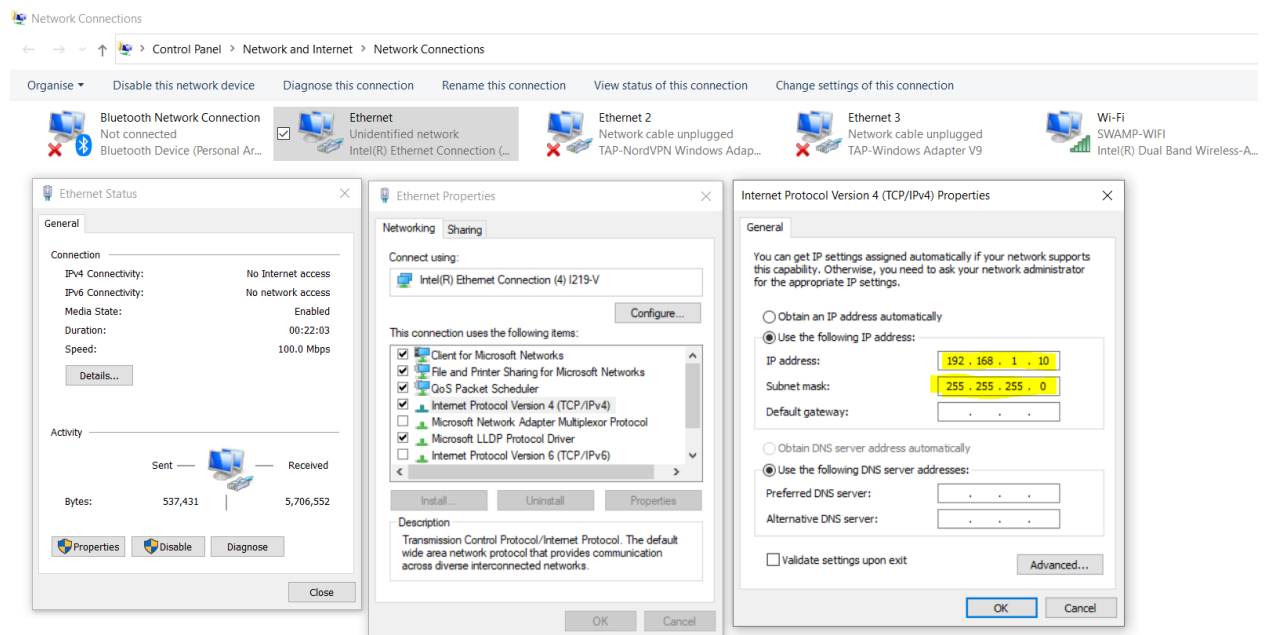
Example of Possible Network Setups:

The in-built Wi-Fi hot-spot is perfect for fast setup and small venues, though Ethernet connections allow for a greater wireless range, access to the internet while controlling the mixer and added measures of redundancy in case of Wi-Fi signal interference.

As with all Wi-Fi controlled devices and network, they can be subject to interference, especially in public places where large numbers of Wi-Fi networks pop-up, and where cellular data traffic is high. The SDM16i has the ability to change Wi-Fi channel (default is 3), to help alleviate this issue. Though for professional mixing applications requiring constant access to mixer controls, a wired ethernet connection is suggested to eliminate wireless access issues.

Internal Hotspot with Wi-Fi Extender Setup:

The in-built Wi-Fi hot-spot is perfect for fast 'tap and play' setup, and suits performers and bands that are mixing on stage close to the mixer itself. Reliable up to 20m, mixing from in

front of the stage is also possible at smaller venues. Though for larger venues connecting an external Wi-Fi extender will boost or expand coverage. You will need to configure the Wi-Fi extender with the settings of the Wi-Fi mixer, and then connect to the Wi-Fi network created by the extender. Note, most smart devices will not allow internet connection via phone network when a Wi-Fi connection is active. Therefore, internet access is not possible when controlling the mixer when using the internal hotspot.

External Hotspot Wi-Fi Setup :
In Ethernet mode, use an ethernet cable to plug into an external Wi-Fi extender/hotspot device. Similar to a Wi-Fi extender, you will connect to the network of the Wi-Fi extender/hotspot. This option allows for cable to run between the location of the mixer and Wi-Fi extender, meaning the Wi-Fi signal can be boosted from an ideal location for mixing. By using an external Wi-Fi extender/hotspot that also has an Ethernet output allows for a complete cable connection to the mixer, eliminating any possibility of Wi-Fi software dropouts giving mixing control 100% of the time. This setup does not connect to the internet, so again access to internet is not possible when connected to the mixer.

External Network with Wi-Fi and Ethernet Setup :
In Ethernet mode, use an ethernet cable to plug into any existing network router to allow for access of the mixer software from any device connected to the network. That includes devices connected via Wi-Fi or via ethernet cable. This is the ideal setup for larger performances and venue installations. Simply connect the mixer into an existing cat5e or cat6 cable wall port, or direct to the router to instantly allow access via the IP address 192.168.1.114 (ability to change to secure access). Having a computer wired via ethernet to the network is ideal for having a reliable device, not affected by wireless signals and battery power, that being constantly connected to the mixer easy staff usage in time critical situations. Also, this setup will allow internet connection to be passed onto all devices, great for being able to stream music using your phone while still connected to the mixer. By adding Wi-Fi extenders to an existing network and adjusting smartphone settings to automatically swap Wi-Fi networks, a wireless connection to the mixer can operate seamlessly between multiple venue locations without the need to reconnect.

Rear Panel:

The rear panel contains an IEC plug power cable input accepting 110-240V (50-60Hz 70W) power, with an on/off switch. Connection details including IP addresses required for software access through a web browser are printed to ensure users can check to access at any time. Consider changing the IP addresses for network access from the default to help secure access to the mixer.

Specifications:

Processing	
Number of processing channels	16 input channels, S/PDIF in and out, 1 stereo USB return channel, 2 FX channels, 4 aux buses, main LR

Internal effects engines	2 true stereo
Signal processing	40-bit floating point
A/D-D/A conversion	24-bit @ 44.1 / 48 kHz, 114 dB A/D dynamic range
Analog I/O latency*	Microphone input-ADC-DSP-DAC- Line out : <1ms

Connectors	
Mic Preamps	16 XLR (combo jacks) balanced
Line inputs	14 TRS, balanced (CH3 to CH16)
Hi-Z inputs	2 TS, unbalanced
Main outputs	2 XLR + 2 1/4", balanced
Aux outputs	4 XLR, balanced

Connectors	
Phones outputs	1 TRS
Ethernet	1 RJ45
USB port	Type A (Maximum current : 500mA)

Mic Input Characteristics	
Preamp design	Low Noise, High Gain APC Mic Pre
THD + noise	-20Dbfs @ 1kHz 0.0078%
Phantom power, switchable per input	48 V
Noise Level	(A Weighting)-78.64 dBFS / (20/20k Bandpass)-75.98dBFS

Input/Output Characteristics	
Frequency range, @ 48 kHz sample rate, 0 dB to -1 dB	20Hz~20kHz
Mic input impedance XLR bal	2.5kΩ
Non clip maximum input level, XLR	+13 dBu
Hi-Z input impedance TS jack, unbal	1 MΩ
Line input impedance TRS jack, bal	10 kΩ
Non clip maximum input level, TRS	+13 dBu

Output Characteristics	
Output impedance, XLR, bal.	100Ω
Output level, XLR, max.	+23 dBu
Output impedance, TRS, bal.	100Ω
Output level, TRS, nom./max.	+23 dBu

Equivalent noise	-121.16dBu

WLAN Module Power	
Switch-mode power supply	88~265VAC Automatic induction (47Hz/63Hz)
Power consumption	<25W

Physical	
Standard operating temperature range	Temperature range : 5℃~45℃
Storage temperature	-20℃~60℃

Digital Wifi Mixer