

# User Manual

## Boston Acoustics BA X8



## Karaoke Mixer

# User Manual

## Boston Acoustics BA X8



Thank you for trusting a high quality audio product developed and produced by Boston Acoustics.

Please refer to and implement the instructions on this User Guide so that the product is set up to correct technical requirements, helping to bring the optimum experience, while ensuring durability for many years of use.

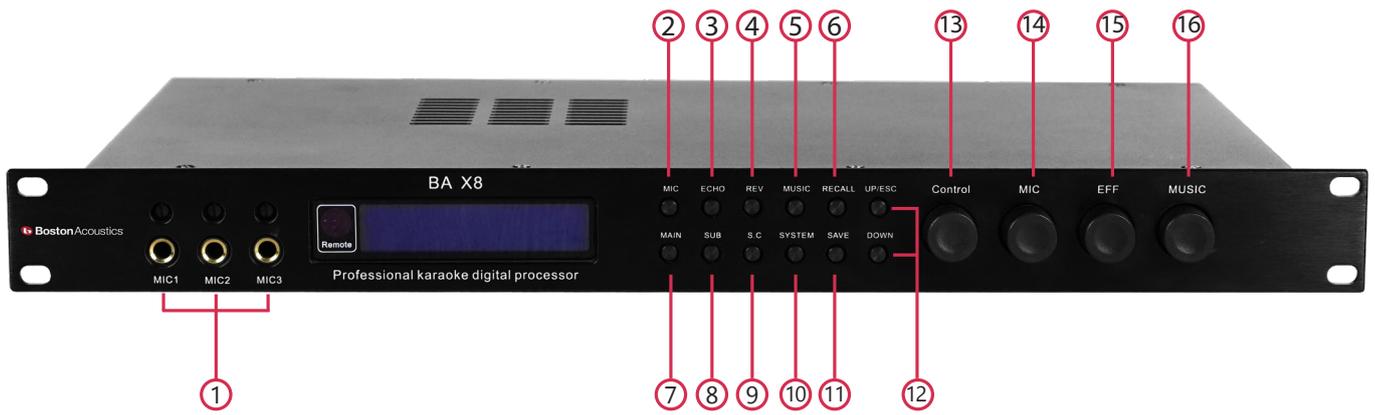
### INTRODUCTION

Boston Acoustics BA X8 Karaoke Mixer (with digital echo) uses DSP technology with 15-band Equalizer to adjust background music, a 15 band equalizer to adjust vocals (Mic), a 3 band equalizer to adjust Echo and 3 band equalizer for reverb. It is equipped with the world's top quality CPU and components for fast and accurate signal processing.

The Boston Acoustics BA X8 features excellent howling and hissing reduction, diverse audio input ports and an intuitive, vivid interface that is easily adjusted by hand right on the Mixer and by computer.

### FOR YOUR OWN SAFETY, PLEASE READ THE FOLLOWING INSTRUCTIONS CAREFULLY BEFORE USE.

1. Please keep this document for future reference.
2. Please keep all packaging and documentation for easy transport to warranty repair center when needed.
3. The power source used must conform to the description in the instruction document or the symbol on the device.
4. Do not place device near water sources, humid places to avoid the risk of fire, explosion, and electric shock.
5. Do not place device near sources of heat such as stoves, heat vents, or other heat generating appliances.
6. Do not place objects containing liquid such as vases, water cups, etc. on the device.

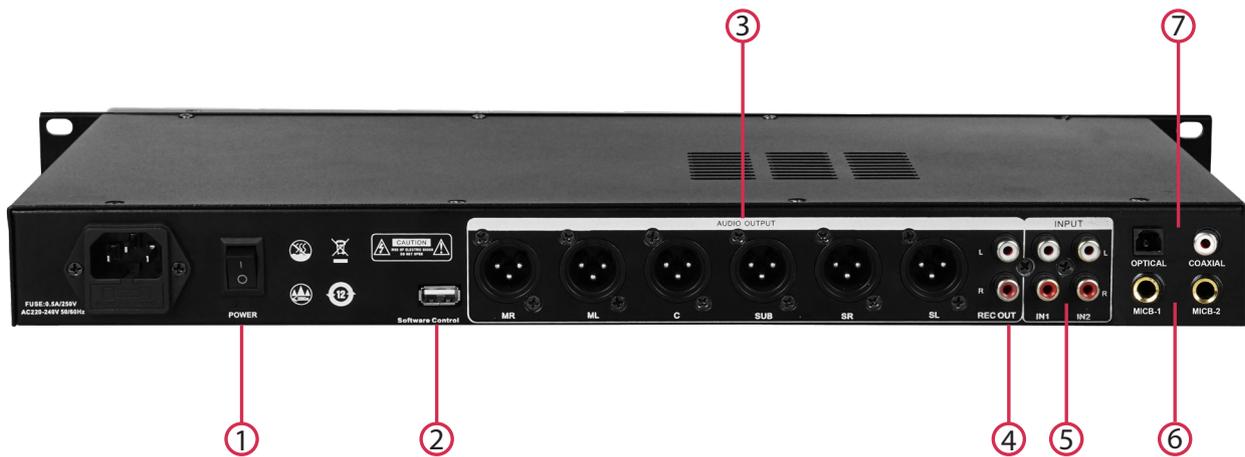


## Buttons & ports

1. **MIC INPUT:** MIC 1/2/3 input port with Volume to adjust the input volume for each microphone.
2. **MIC:** Press to adjust **Microphone** settings when singing.
3. **ECHO:** press to adjust **Echo** settings when singing.
4. **REV:** Press to adjust **Reverb** settings when singing.
5. **MUSIC:** Press to adjust **background music** settings when singing.
6. **RECALL:** Recall the saved Karaoke modes after editing.
7. **MAIN:** Press to adjust settings for the main speaker to use.
8. **SUB:** Press to adjust settings for the subwoofer (adding bass).
9. **SC:** Press to adjust settings for Surround speakers (sub speakers additionally support creating surround sound, placed behind the stand-out position) and Center speaker (sub-speaker supporting vocals, placed in the middle 2 main speakers).
10. **SYSTEM:** Press to adjust the audio source connection port and set parameters for the system control.
11. **SAVE:** Press to save the calibration parameters.
12. **UP / ESC & DOWN:** Adjustment navigation buttons

## Knobs

13. **Control:** Adjust settings
14. **MIC:** Adjust the output volume for **Microphone**
15. **EFF:** Adjust the volume of the effect for both **Echo** and **Reverb**
16. **MUSIC:** Adjust the volume of background music



1. **POWER:** Power on / off switch and power supply cord port.
2. **Software Control:** USB port computer connection to adjust Mixer settings by software.

**AUDIO OUTPUT**

3. The audio output ports connect to the Power Amplifier using the XLR jack.
  - **MR / ML:** 2-channel audio output terminal for Main speaker (main speaker) Left / Right.
  - **C:** Audio output terminal for Center speaker supports gentle karaoke singing.
  - **SUB:** Output port for connecting subwoofer.
  - **SR / SL:** Audio output for Left / Right 2-channel Surround speaker for better karaoke sound with surround sound set.
4. **REC OUT:** Left / Right 2-channel Analog audio output terminal using RCA jack (lotus jack). This port can be used to connect the Subwoofer.

**AUDIO INPUT**

5. **IN1 & IN2:** Left / Right 2-channel Analog audio input port uses RCA jack (lotus jack) to connect traditional Karaoke DVD player, CD player ...
6. **MICB1/MICB2:** Microphone port
7. **OPTICAL/COAXIAL:** Input port to receive Digital audio signal via Optical Out and Coaxial Out connection from TV or Karaoke player, HDbox ...

## DIRECT ADJUSTMENT

After pressing the setting buttons for **MIC, ECHO ...** directly on the Mixer, please use the **UP / ESC** and **DOWN** buttons to navigate the settings list, **rotate the Control knob to change the adjust each setting**. If there is no additional adjustment, after 20 seconds, the detailed setting screen interface will automatically exit back to the Mixer's default operating screen interface.



*BA X8 Mixer and PA 1000 Amplifier*

## MUSIC

Press the **MUSIC** button -> **DOWN**, turn the **Control** knob to select **HPF** to cut the Bass band frequency for the Main speaker for Karaoke. Normally, if you use a subwoofer, cut the HPF for the Main speaker in the range of 75Hz to 110Hz.

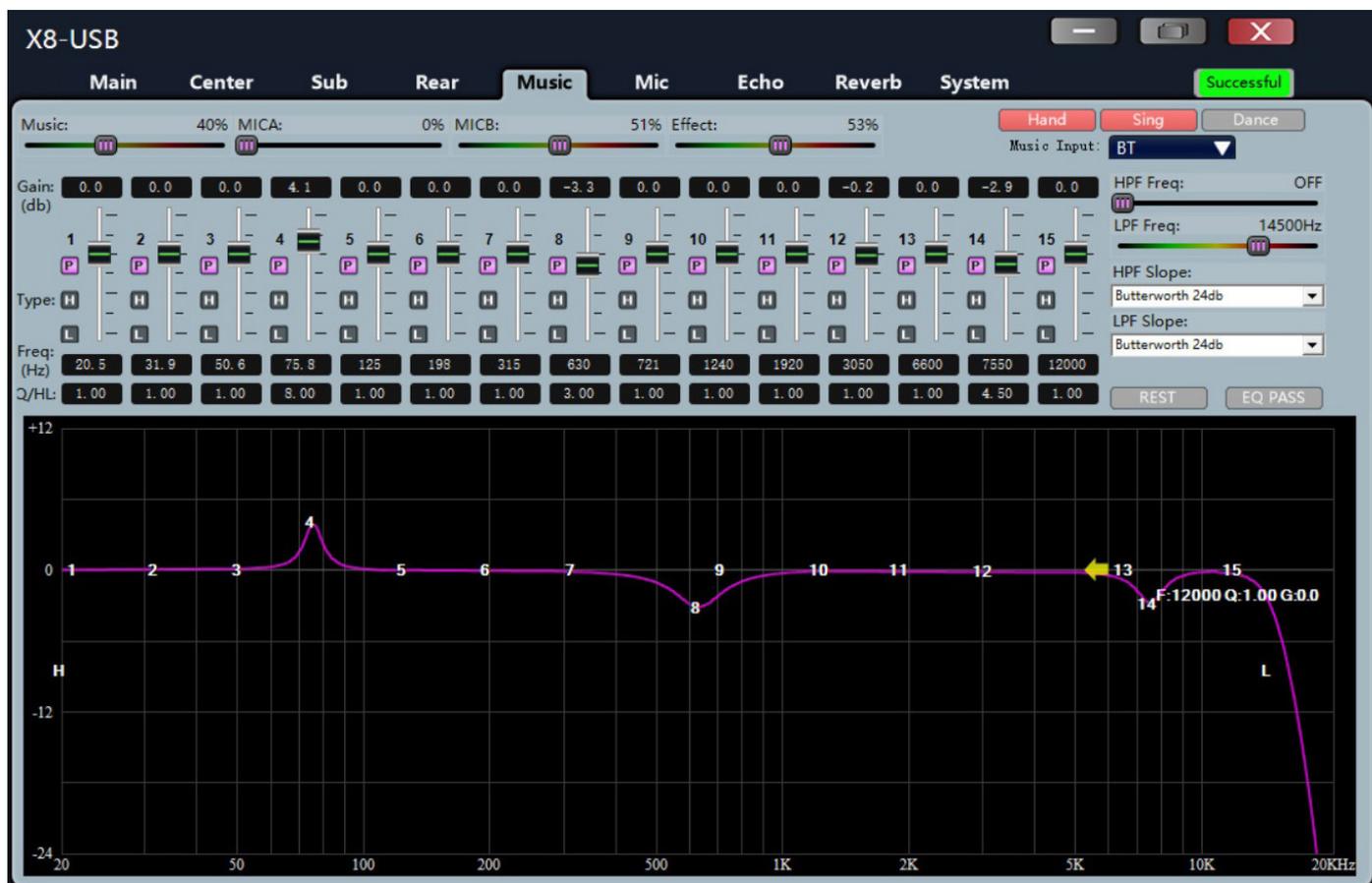
Press the **MUSIC** button "2 times", navigate to the **15 band Equalizer** for **MUSIC**, press the **UP / ESC** and **DOWN** buttons, turn the **Control** knob to change setting:

- EQ 1 -> EQ 5 for tuning Bass frequency from 20.5Hz -> 125Hz
  - EQ 5 -> EQ 11: for tuning frequency 125Hz -> 1920Hz
  - EQ 11 -> EQ 15: for tuning high frequency 1920Hz -> 12000Hz
- For Dance music, you can increase the bass (63Hz -> 125Hz) about 2-3 dB to give the Bass more power, reduce the Midrange (400Hz -> 2000Hz) about 3dB and increase the High sound (4000Hz -> 16000) 1dB to help the Treble sound range as well as the instrument sound stand out.
  - For Bolero music, you can reduce the mids (400Hz -> 2000Hz) about 1 -> 3dB so that the singer's voice does not overwhelm the musical instruments for all 3 bands.
  - Depending on the genre of music, different types of speakers, and different room spaces, when listening you may need different settings to suit your karaoke set.

## Calibration by software on a computer

Software to download to the computer from the link: <http://bostonacousticspro.com/support/software>

Use a USB cable to connect the computer to the Mixer (USB **Software Control** port behind the Mixer) and click open to run the software.



*The Music section calibrates depending on the speaker and listening space*

On interface software, in the **Music** section, you will find the following options:

In addition to choosing the **HPF Freq** to cut the Bass band frequency, there is also a **LPF Freq** setting to cut the High band frequency, a crossover filter with 3 types of crossover: Bessel, Butterworth, Link Riley (Linkwitz-Riley) with a 24-48dB / oct option.



## MAIN

Press the **MAIN** button **twice** to enter the calibration menu for the Main speaker for Karaoke, press the **UP / ESC** and **DOWN** buttons, turn the **Control** knob to change the parameter.

### Volume for sections

- **MU:** background music volume, default at +100, custom + (-) 0 -> + (-) 200
- **MI:** Micro volume (singing voice), default at +100, custom + (-) 0 -> + (-) 200
- **Echo:** volume of humming effect for vocal, default at +100, custom + (-) 0 -> + (-) 200
- **Rev:** vocal echo effect volume, default at +100, custom + (-) 0 -> + (-) 200

After adjusting the above settings, press the **MAIN** button, press **UP / ESC** and **DOWN**, rotate the **Control** knob to change settings of each section:

- **HPF** to cut the frequency of the Bass range, the HPF for the Main speaker should only be cut if you are using a sub-woofer, cut in the range of 35Hz to 63Hz.
- **LPF** to cut the High band frequency, usually you should not cut the high frequency for the Main speaker.
- Crossover filter has 3 cut formats: Bessel, Butterworth, Link Riley (Linkwitz – Riley) with 24-48dB / oct option.

Press the **MAIN** button, select **UP / ESC** and **DOWN**, rotate the **Control** knob to change the 8-band EQ settings:

- EQ 1 -> EQ 3 for tuning Bass frequency from 20.9Hz -> 99.0Hz
- EQ 3 -> EQ 6: for tuning mid-frequency equalizer 99.0Hz -> 1500Hz
- EQ 6 -> EQ 8: for tuning high frequency 1500Hz -> 7850Hz

Press the **MAIN** -> **UP / ESC** and **DOWN** buttons, turn the **Control** knob to adjust the **Compressor function** to process the compression to audio passing threshold, to balance the volume and soften the sound:

- **AT (Attack):** the amount of time it takes to switch from the original signal to a fully compressed form after the signal exceeds the threshold of sound intensity.
- **LU (Threshold):** Sound intensity limit is set to prevent music noise.
- **RT (Release Times):** the amount of time after the audio is compressed will return to normal.
- **Ratio:** The rate of compression of when the audio signal is beyond the threshold.

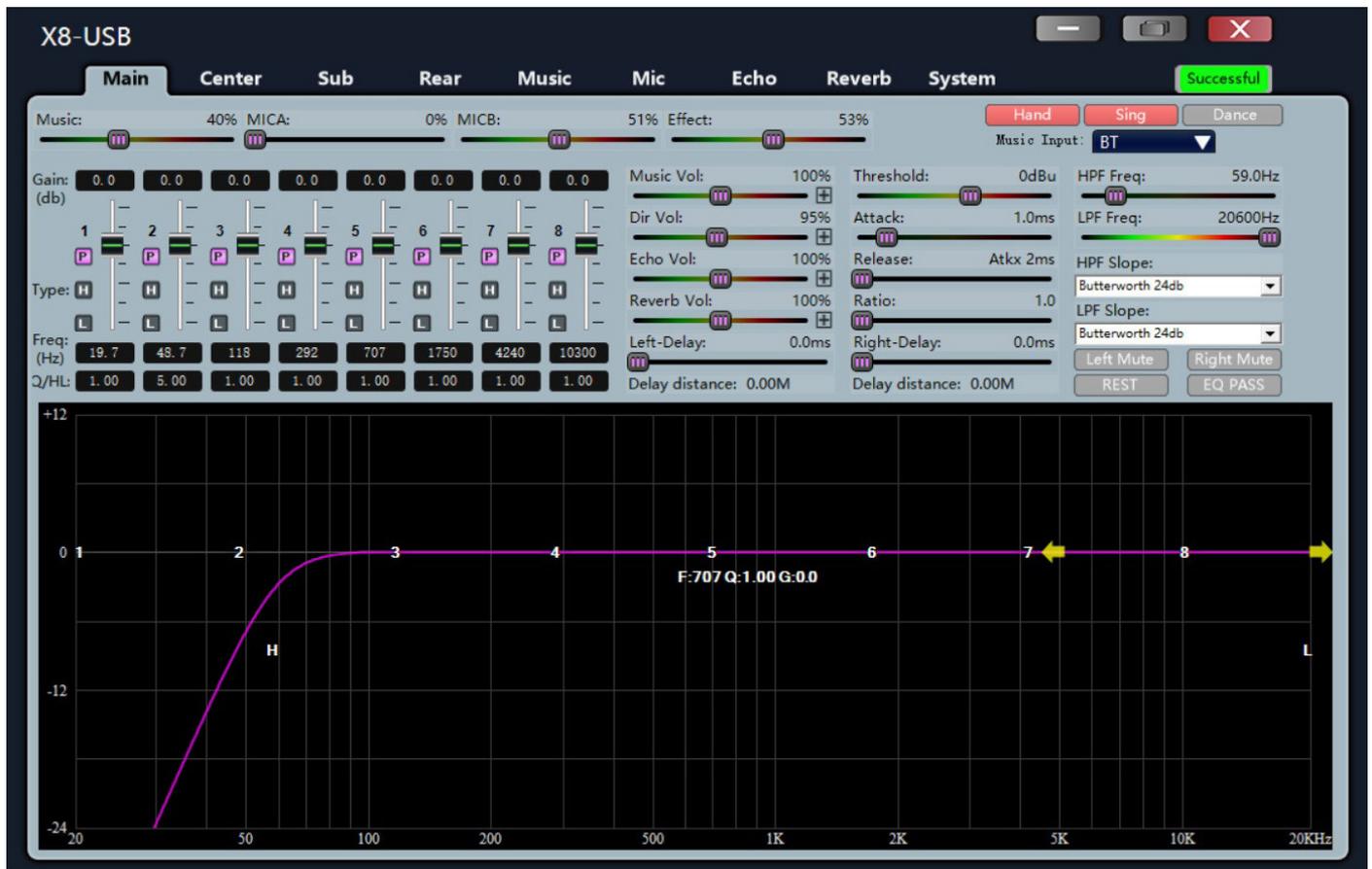
Press the **MAIN** button, select **UP / ESC** and **DOWN**, rotate the **Control** knob to calibrate: **Delay L** and **Delay R**: set up 2 channels of Left speaker (left) and speaker R (Right) with different Delay speed.

**DELAY:** Adjust the repetition rate (the amount of time between repeated sounds from the microphone with reverberation effects, increase (fast) or decrease (slow), suitable for many music genres.

The Delay effect on either left or right speaker should be adjusted to be higher than the other side so the Delay sound is more harmonious when one speaker is placed closer to a wall corner than another. This method can also create a Pingpong style Delay effect. Delay repetition will be set for left and right speaker channels with different delay speeds, creating the feeling that the sound bounces between the speakers,

great for large spaces to create more resonance for the microphone.

Press the **MAIN** -> **UP / ESC** and **DOWN** buttons, turn the **Control** knob to select **Mute L** and **Mute R**: the left speaker (left) and speaker R (Right) mute option.

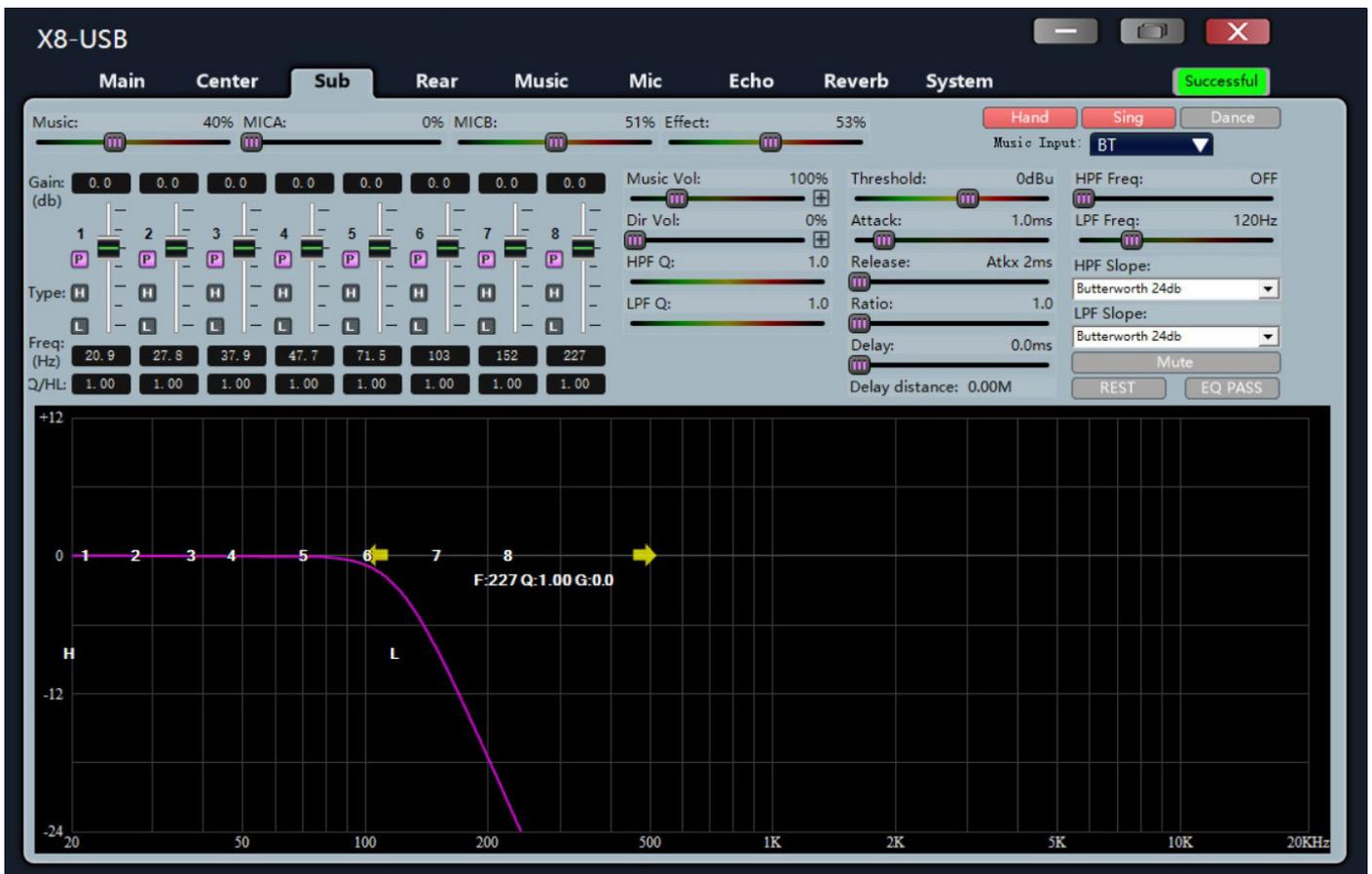


*The Main setting calibrates depending on the speaker and listening space*

On the computer calibration software, you can see the increase / decrease of **Dir Vol (Mic Direct** - direct sound of the microphone without processing). Increasing this setting will make bright sounds rawer, reducing this setting will make high sounds softer.

## SUB

- **Press the SUB button twice** to enter the individual settings an additional subwoofer added, press **UP / ESC** and **DOWN**, turn the **Control** knob to set the volume of the background music to the speaker (**MUSIC - Music Vol** on the software) , the volume of the microphone sound out to the speaker (**MIC - Dir Vol** on the software).
- **Click the SUB button** -> press the **UP / ESC** and **DOWN** buttons, rotate the **Control** knob to cut **HPF** and **LPF** frequencies, Crossover settings have 3 types of frequency cuts: Bessel, Butterworth, Link Riley (Linkwitz-Riley) and an option for 24 -48dB / oct.
- **Click the SUB button** -> press the **UP / ESC** and **DOWN** buttons, rotate the **Control** knob to change the 8-band EQ calibration parameters from 20.9Hz -> 227Hz.
- **Click the SUB button** -> press the **UP / ESC** and **DOWN** buttons, rotate the **Control** knob to change parameters to adjust the compression features of the compression processing to avoid exceeding the threshold.
- **Click the SUB button** -> press the **UP / ESC** and **DOWN** buttons, rotate the **Control** knob to change the **Delay** calibration parameters or select **Mute** to mute the subwoofer.



The SUB section adjusts to the speaker and listening space

## S.C

If you add a center speaker and surround speakers, press the **SC** button twice to select the adjustment for each speaker, the setup steps are the same as the installation steps for the main speaker used to sing Karaoke.



## MIC

Press the **MIC** button -> press the **DOWN** button, rotate the **Control** knob to turn on the anti-howling mode (anti-Feedback) with 3 optional levels, choose the active **microphone port** as **MicA** port (front port) or MicB (back port).

Hold the **MIC** button -> press the **DOWN** button to select **HPF** to cut the Bass band frequency for the **microphone** (on the software, select **LPF** to cut the High band frequency), Crossover filter with 3 cutting formats: Bessel, Butterworth, Link Riley (Linkwitz – Riley) with an option for 24-48dB / oct.

Press the **MIC** button -> select **15 band EQ** for **Microphone**

The **MIC** section will have **15 band EQ** for us to customize the microphone's signal cut, used to cut the howls or compensate for the low signal.

- EQ 1 -> EQ 5 tuned Bass frequency from 20.5Hz -> 125Hz
- EQ 5 -> EQ 11: mid frequency 125Hz -> 1920Hz
- EQ 11 -> EQ 15: high frequency 1920Hz -> 12000Hz

Depending on the voice quality of each person and depending on the type of microphone, you can make basic adjustments as follows:

- For people with a rich bass heavy voice, the sound intensity should be reduced between 125Hz and 250Hz to avoid humming.
- For people with a thin voice, it is recommended to increase the sound intensity between 60Hz and 125Hz to thicken and add warmth to the voice.
- If the speaker Mid sounds outperforms the Bass and Treble, you can reduce the sound intensity at the 250-Hz-1000Hz frequency to get an equal sound on all 3 EQ bands. On the contrary, if the speaker has a superior Bass and Treble sound, you can adjust the intensity of these 2 bands so that the singing is less harsh, cutting the howls of the Microphone, the voice becomes sweeter and more elegant.



*Calibrate the MIC setting depending on the speaker, microphone used and listening space*

Press the **MIC** button next, choose the **Compressor** feature to process the compression to avoid over the threshold for the microphone, bringing the balance of the vocal volume along with the soft and neat. Also depending on the genre of music, different types of speakers, and different room space, you will have different adjustments to best suit your karaoke set.

## Echo and Reverb adjustments



- **Echo:** is the echo effect on your voice.
  - **Reverb:** is the repetition of your voice, creating a vibrating sound when singing.
- Adding both Echo and Reverb adjustments will create better resonance when singing.

### ECHO

Press the **ECHO** button -> press **UP / ESC** and **DOWN**, rotate the **Control** knob to change parameters:

**Level** (on the software will be **Echo Vol**) is the intensity of the echo effect on the voice, usually left at about 50 -> 70 so that the **Echo** is not too loud. To avoid overwhelming the voice, adjust the **Direct Level (Dir Vol** on the computer software).

Press the **ECHO** button -> press **UP / ESC** and **DOWN**, rotate the **Control** knob to change the Delay parameter (time delay between repeated sounds of the microphone)

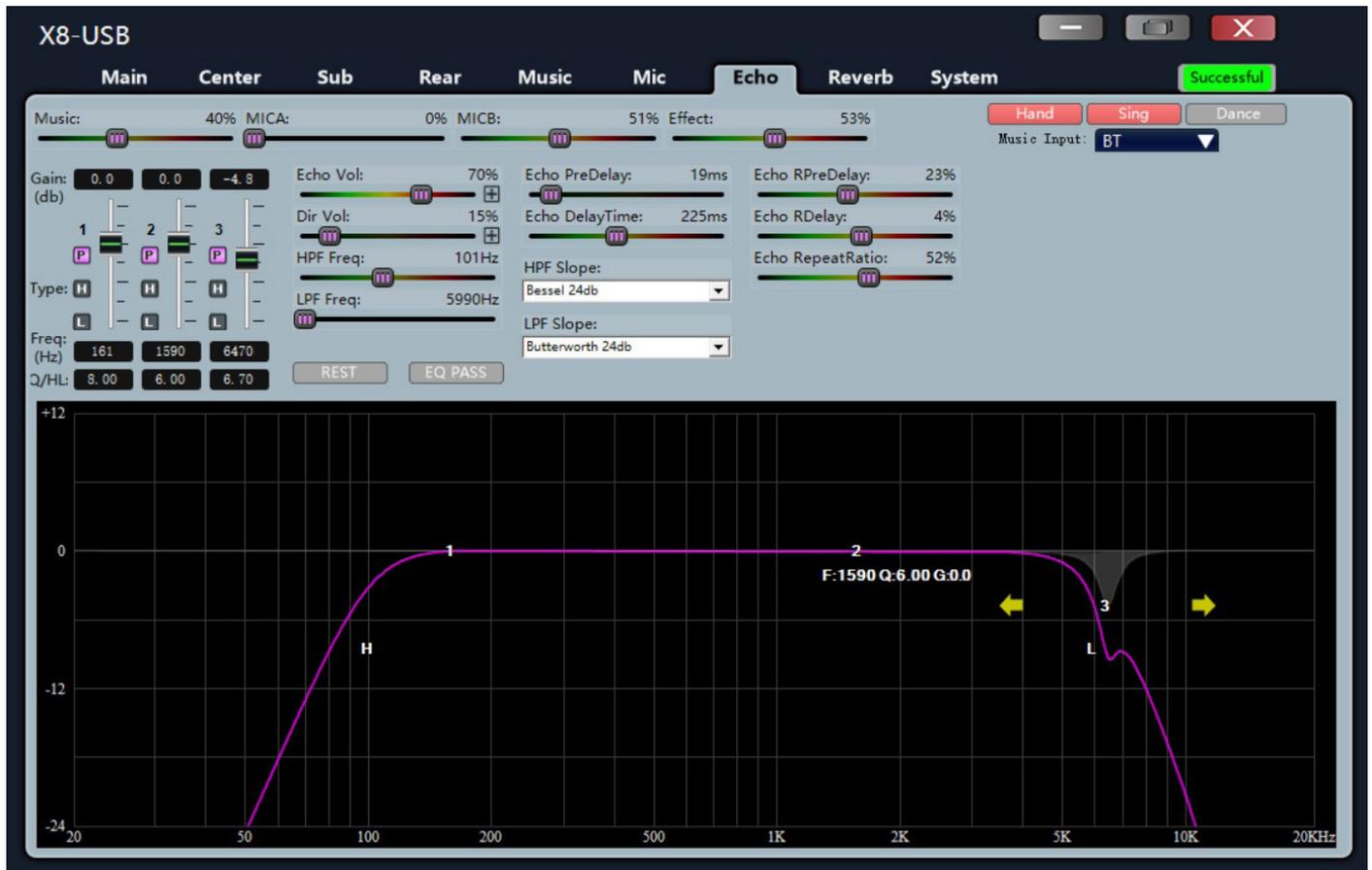
- **Pre Delay ( Echo Pre-Delay):** is the delay before the start of a repeat sound, usually set at 5.0ms
- **HPF:** cut the Bass band frequency for **Echo**, usually cut in the range from 75Hz to 110Hz to help the **Echo** effect when the Low band sound thicker humming and howling when singing.
- **LPF** to cut the High band frequency for **Echo**, will usually cut in the range from 5000Hz to 16000Hz to help the **Echo** effect when the High band sound smooth and reduce hissing.

Press the **ECHO** button -> press **UP / ESC** and **DOWN**, rotate the **Control** knob to change settings:

- **Echo Delay (Echo Delay Time):** repetition speed of vocals. Depending on the space and the specific genre of music, you can make adjustments as follows:
- For lyrical Bolero music, slow tempo ballads, decrease the repeat speed (185ms -> 195ms) so that the banding is in harmony with the rhythm and accompaniment.
- For Remix music, Dance music, Rock ... fast tempo, push the repetition speed up (157ms) to reduce the level of Delay
- **Repeat (Echo Repeat Ratio):** is the degree of repetition of the vocal with an echo, for example we say "one", the Echo effect with Repeat will create a repeat sound "One-One-One-One ..." many times. Customize based on how much of a ringing effect you prefer when singing. It is recommended that you keep repeat a little high (level 50 to 60) to help the microphone sound less dry and help vocals mix with the music better.
- In order for Karaoke to become more soft, gentle and easy to, in addition to slowing the repeat sound to create a wide echo, you can increase the **Repeat** level to create more vibrancy of the voice. Say the word "One" and adjust so that the word is repeated about 6 times so that when singing with background music, the voice will have enough natural vibration.

Press the **ECHO** button -> press **UP / ESC** and **DOWN**, turn the **Control** knob to select **ECHO Pre\_Del\_R (Echo RpreDelay)** and **Delay\_R (Echo Rdelay)** to adjust the level of Delay for the Right speaker channel - right speaker channel. Add a little latency to the Right speaker channel to create a wider music space, but ensure a harmonious continuity between the Left and Right speaker channels.

Press the **ECHO** button -> press **UP / ESC** and **DOWN**, rotate the **Control** knob to adjust the 3-band EQ for **Echo**.



*Echo adjustment depends on the speaker, microphone used and listening space*

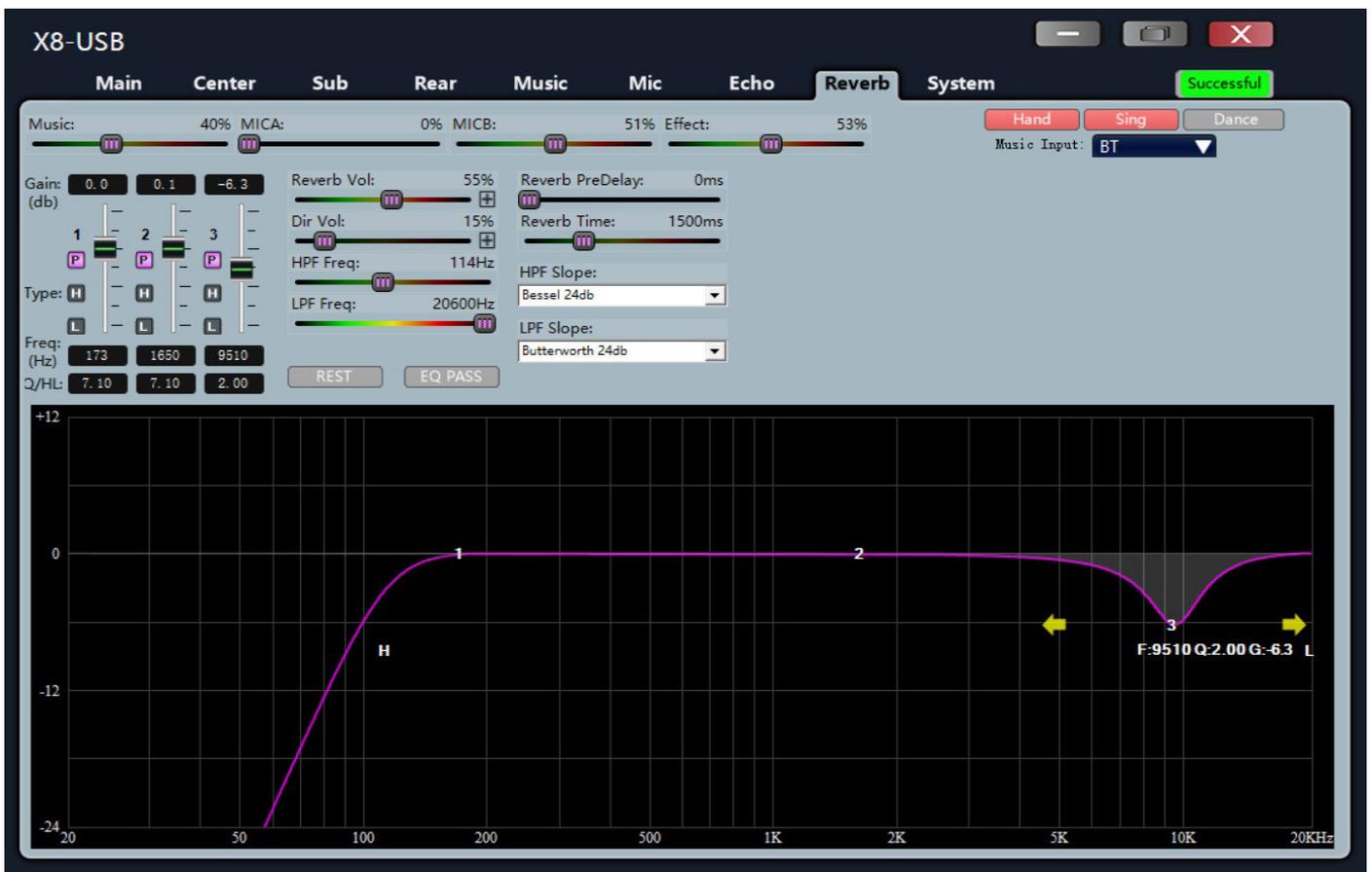
## REV

Press **REV** button -> press **UP / ESC** and **DOWN**, rotate **Control** knob to change parameters for Reverb: **Level** (on the software will be **Reverb Vol**) intensity of the echo effect of the voice, usually left at about 20 -> 50 so that the **Reverb** is not too loud. Ensure the reverb does not overpower the singing voice by adjusting **Direct Level (Dir Vol)** on the software)

Press the **REV** button -> press **UP / ESC** and **DOWN**, rotate the **Control** knob to change parameters

- **Reverb Time:** The amount of stretch to the echo of the voice, usually left between 1500ms and 3120ms depending on the speakers and space.
- **Reverb Pre Delay:** is the time delay before the echo starts, normally left at 0 because Reverb will not need Delay.
- **HPF** cut the Bass band frequency for Reverb, usually cut in the range from 75Hz to 110Hz to help the Reverb sound thick and reduce humming and howling when singing.
- **LPF** to cut the High band frequency for Reverb, will usually cut in the range from 5000Hz to 16000Hz to help the Reverb effect sound smooth and reduce sharpness hissing when singing.

Press the **REV** button -> press **UP / ESC** and **DOWN**, rotate the **Control** knob to adjust the 3-band EQ for Reverb.



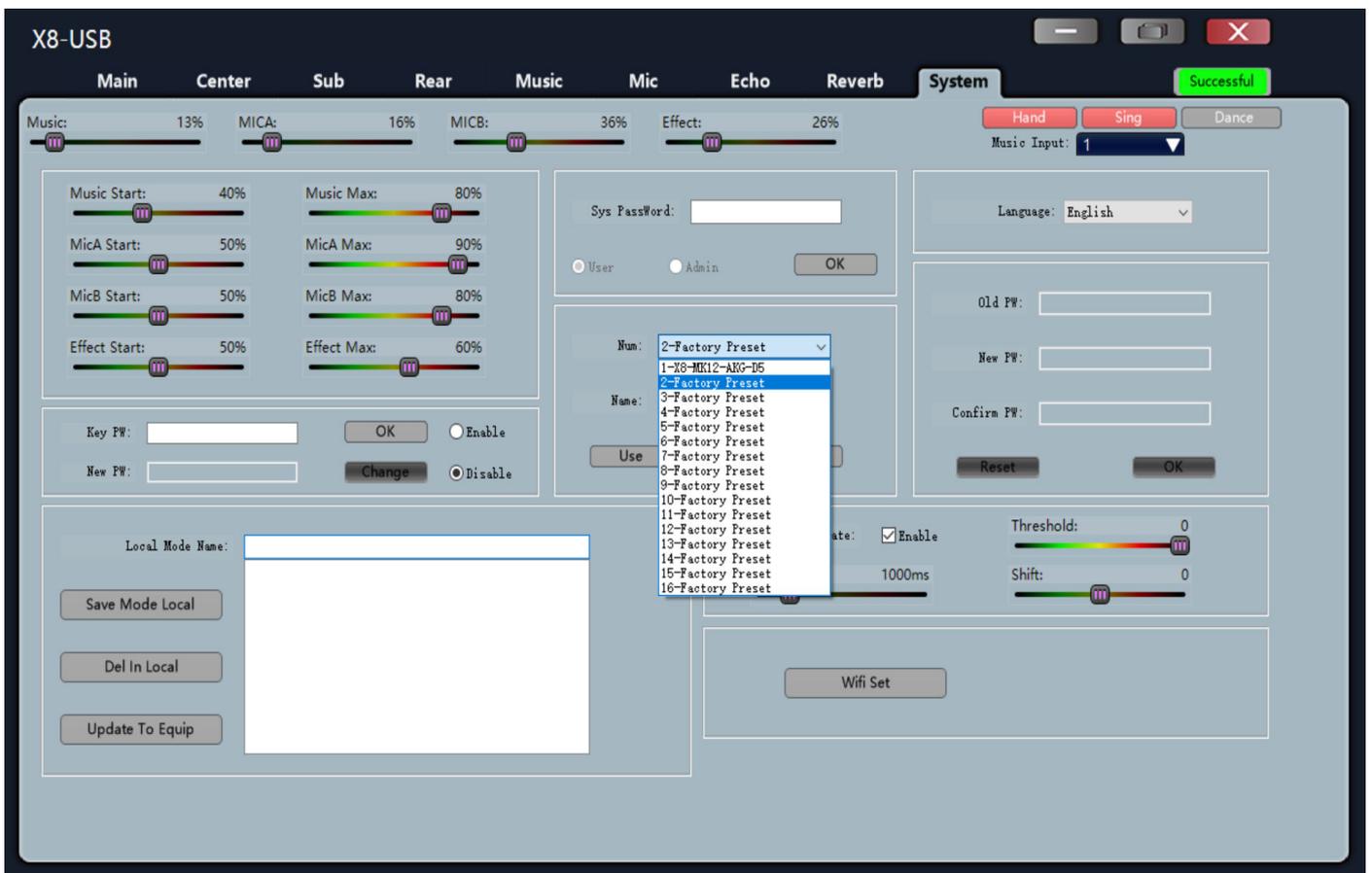
The Reverb section adjusts practically according to the speaker, microphone used and listening space

## CREATE PROGRAMS WITH CUSTOMIZED INDIVIDUAL PARAMETERS

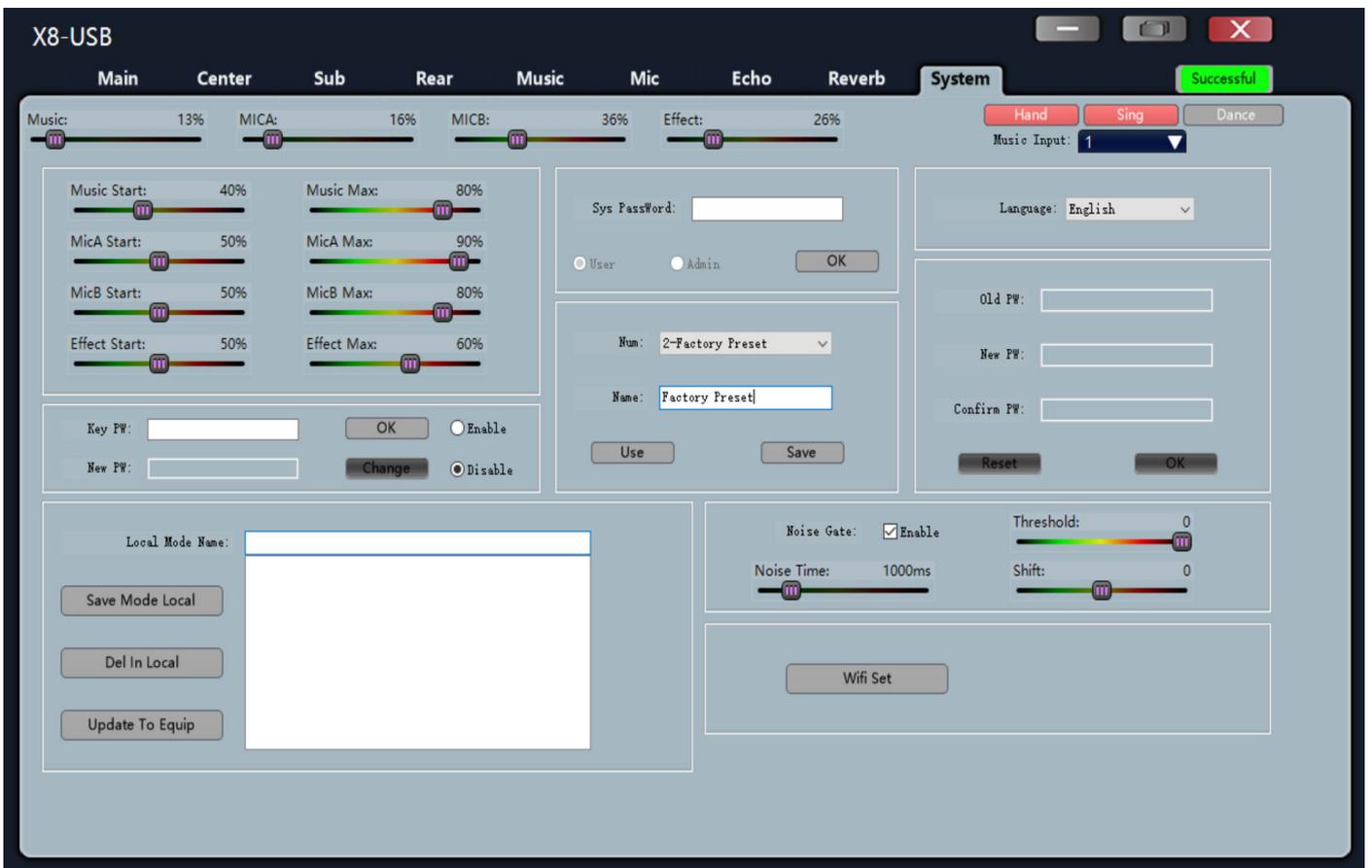
After making adjustments directly on the Mixer, press **SAVE** -> **Save to mode**, press the **UP / ESC** button, choose to save into one of the 16 pre-programmed modes, then press **SAVE** -> **DOWN** (select **Yes**)

On Mixer, after manually adjusting and saving to a mode, please press the **RECALL** button -> press the **UP / ESC** button to select the mode you want to use, then press the **RECALL** button -> The screen will show **Recall Mode** -> Press the **DOWN** button (select **Yes**).

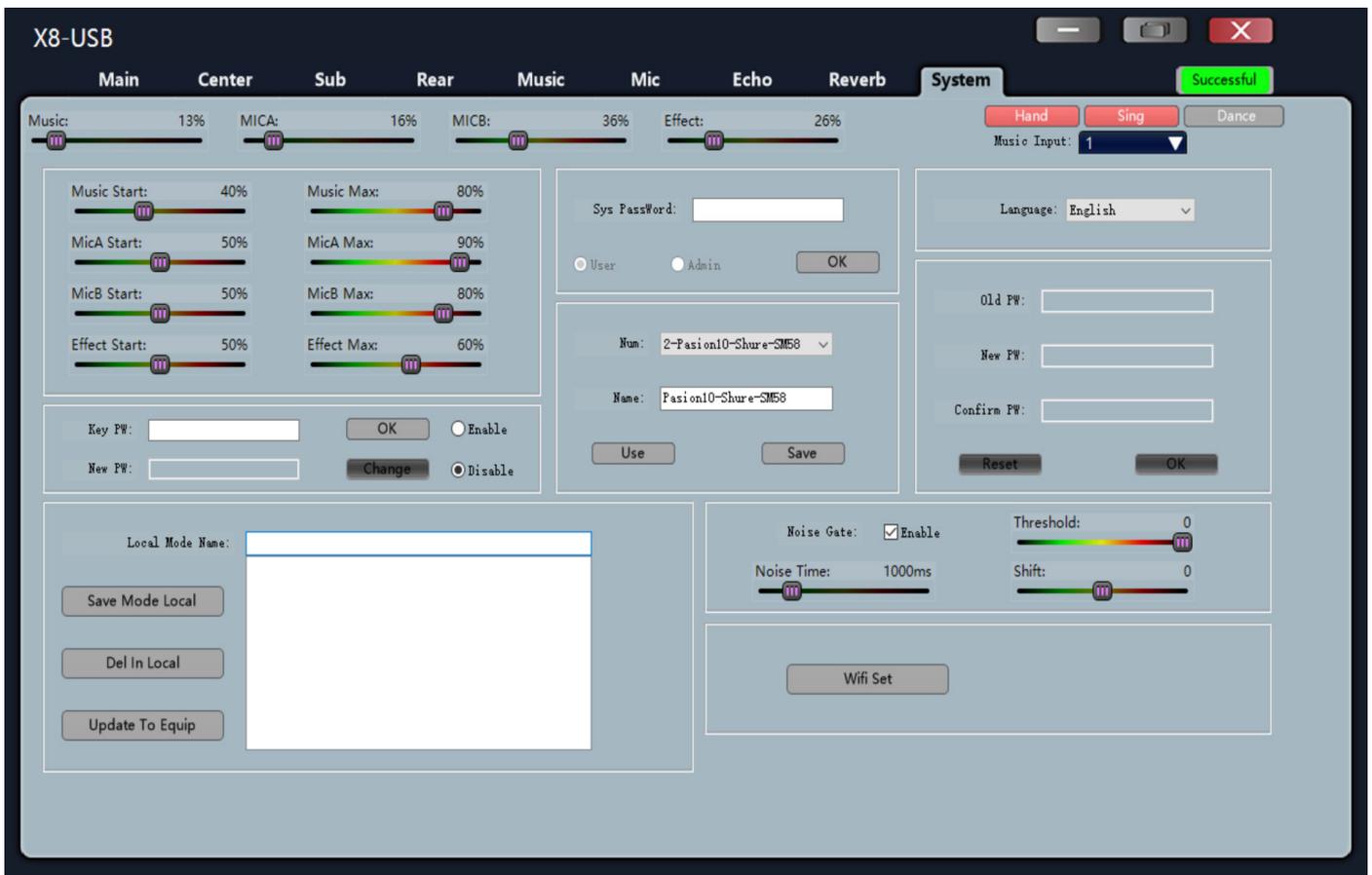
On the software, go to **Num**, click **Factory Preset** options



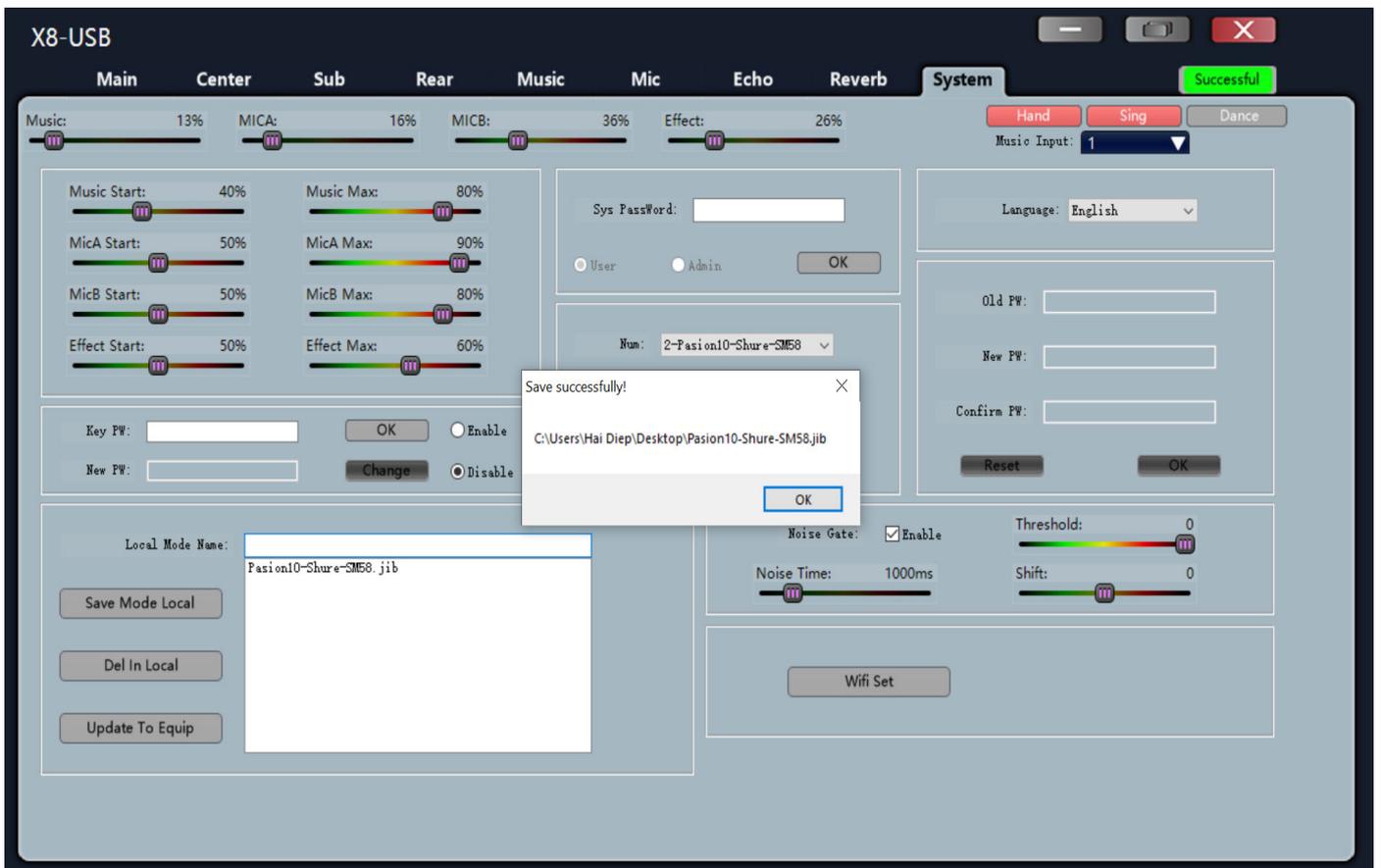
Then, click on **Name** to rename for easy use. Then click **Save**.



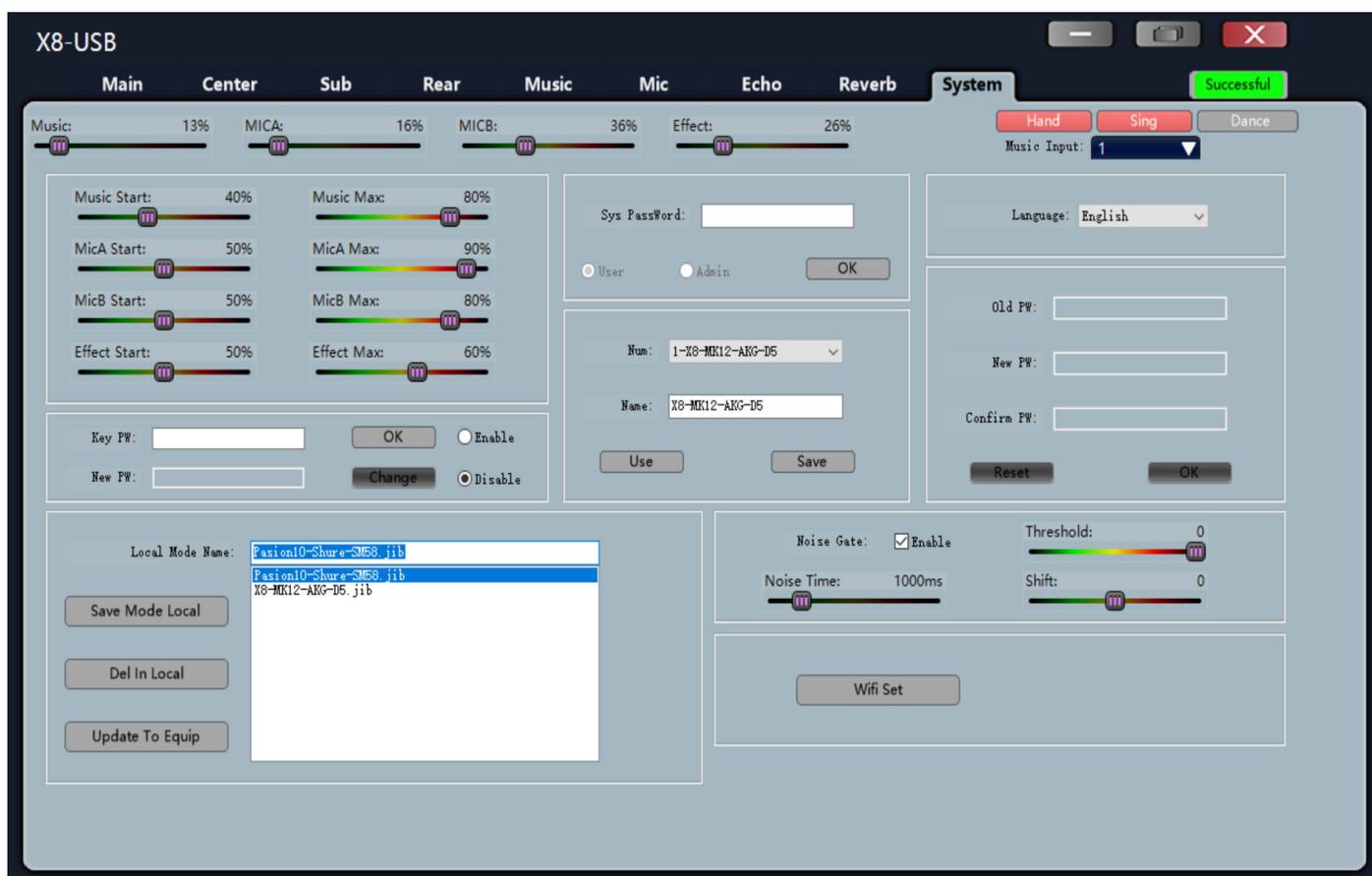
After clicking **Save**, press **Use** to load using the newly adjusted program settings.



If you want to save a program you have set up on your computer, copy the newly created Mode name line in **Name** and Past Paste into the **Local Mode Name** as shown, then click the **Save Mode Local** box, the installation program will be saved in your computer.

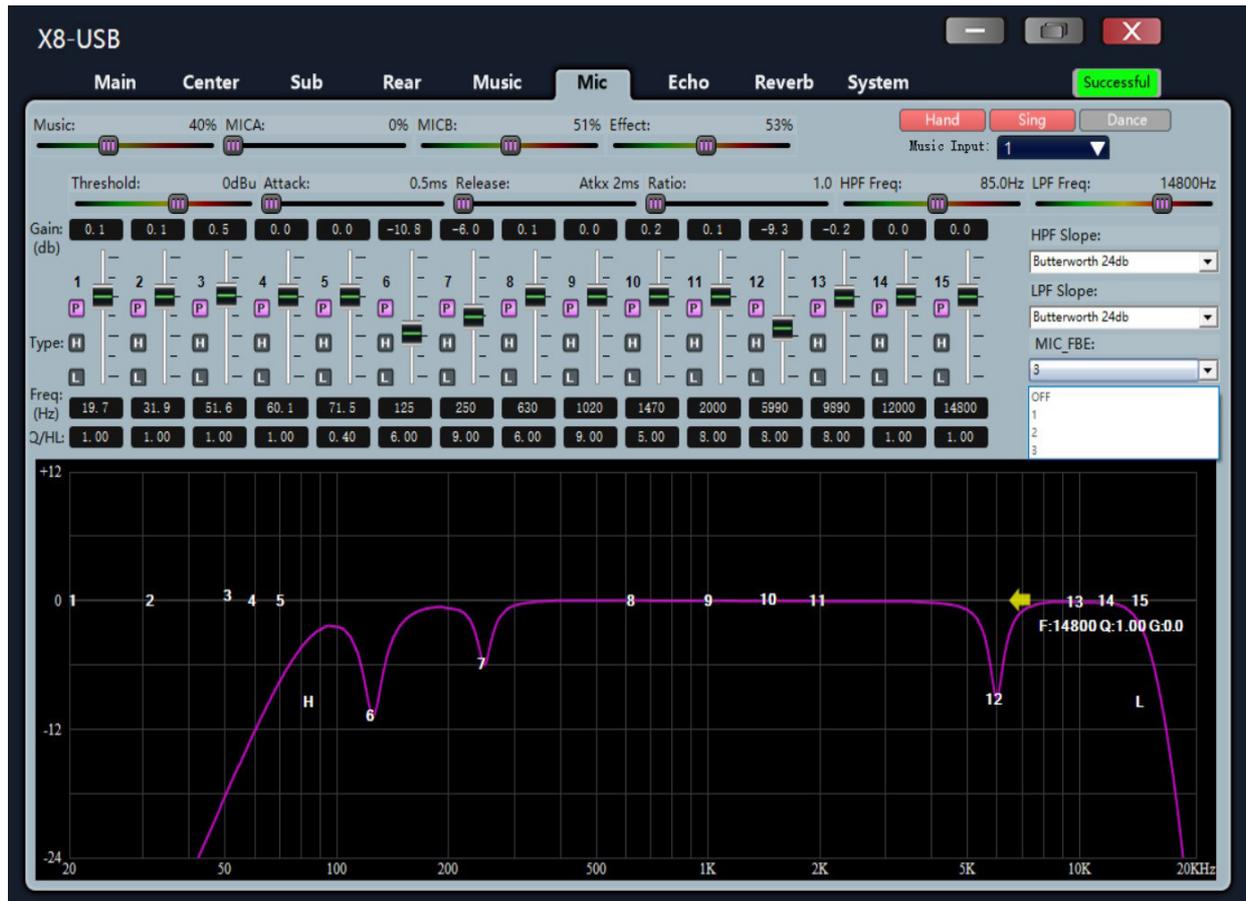


When you need to install a different Boston Acoustics BA X8 digital Mixer paired with a Karaoke system with the same configurations (Speakers, Microphone ...) that you have set to calibrate, you just need to click on the saved program line in your computer and click **Update To Equip** to use immediately.



- To set the volume level to start working as soon as the Mixer is turned on and the volume level is limited when the Mixer is active, just like on the computer software screen, press the **SYSTEM** button right on the Mixer, from the 6th time onwards, you will find the following items:
- **Music Start: (Music Star Vol - on the Mixer screen)** Default volume level for music when using Mixer, turn the MIC VOL knob to adjust 0 -> 80.
- **Music Max: (Music Limter Vol - on the Mixer screen)** Limit the maximum volume level for music when using the Mixer, turn the MIC VOL knob to adjust 0 -> 80.
- **MicA Start: (MicA Star Vol - on the Mixer screen)** Default volume level for Microphone A when Mixer is turned on, turn the MIC VOL knob to adjust 0 -> 80.
- **MicA Max: (MicA Limter Vol)** Limit the maximum volume level for Microphone A when using the Mixer, turn the MIC VOL knob to adjust 0 -> 80.
- **MicB Start: (MicB Star Vol - on the Mixer screen)** Default volume level for Micro A when turned on using Mixer, turn the MIC VOL knob to adjust 0 -> 80.
- **MicB Max: (MicB Limter Vol)** Limit the maximum volume level for Micro A when using the Mixer, turn the MIC VOL knob to adjust 0 -> 80.
- **Effect Start: (Effect Star Vol - on the Mixer screen)** The default volume for the effect sound when Mixer is turned on, turn the MIC VOL knob to adjust 0 -> 80.
- **Effect Max: (Effect Limter Vol - on the Mixer screen)** Limit the maximum volume level for the effect sound when Mixer is turned on, turn the knob to adjust 0 -> 80.
- **LOCK:** disable / unlock or allow manual adjustment of parameters directly on Mixer, except volume
- **MUTE:** Mute / unmute the Mixer.

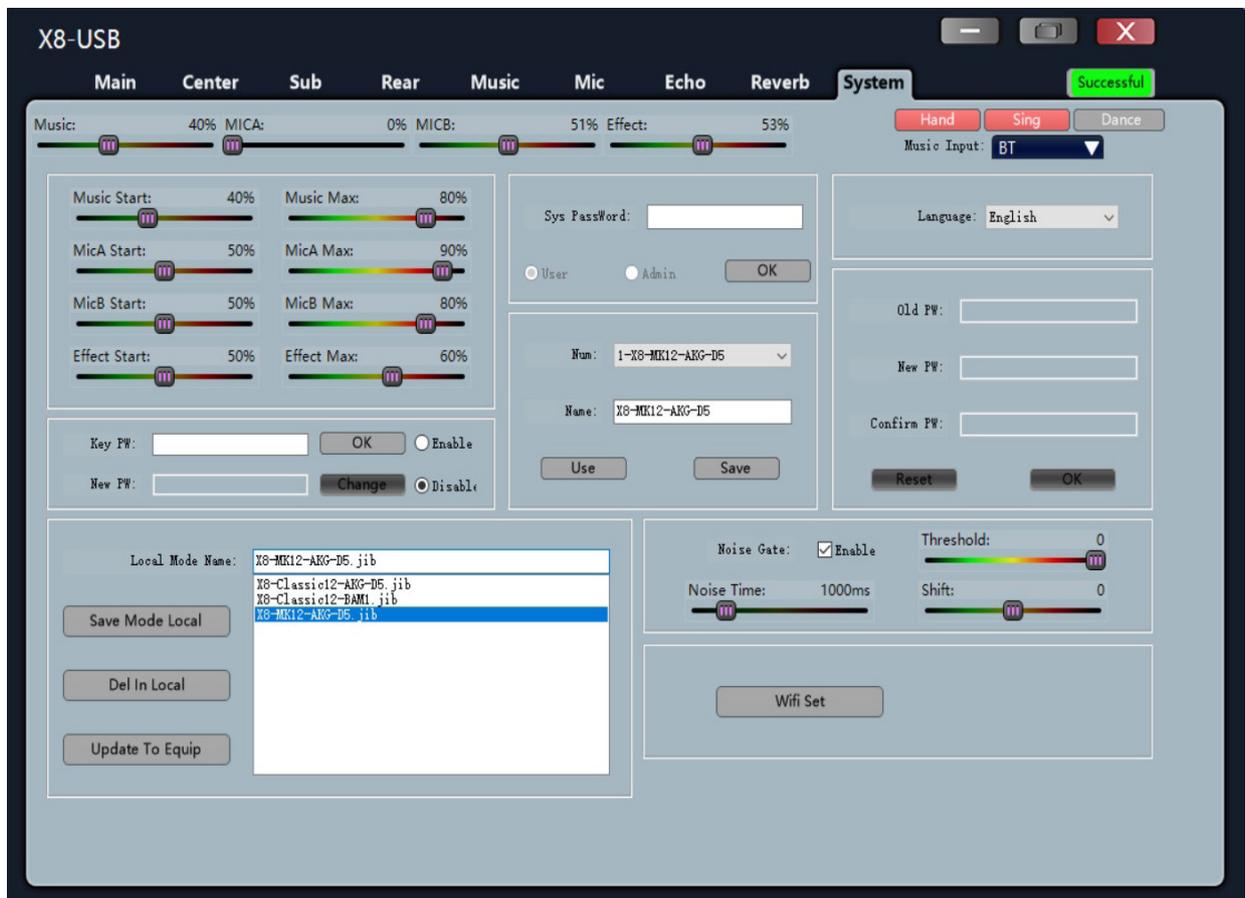
- **Music Exciter:** turns on / off the feature that enhances the vibrancy of the background music.
- **Mic Feedback:** turn on / off the function of canceling feedback, to help keep the sound from howling.



*Customize Mixer's anti-howling mode  
The MIC\_FBE entry in the Mic section of the computer software*

Use computer software to turn on / off **Lock mode**, which does not allow or allows manual adjustment on the Mixer, except for volume

- On the computer software screen, click **Enable (Lock mode - not allow)**, click **Disable (UnLock mode - allow)**



On the Mixer, **press** the **SYSTEM** button **2 times** -> see **Auto Keyset Lock** -> press the **DOWN** button to find **Mode: OFF** (Mixer is fully unlocked) -> turn the **Control** knob, select **ON** -> press **SAVE** -> press **DOWN** (select **Yes**) -> Mixer is locked, now you can only adjust the Volume  
 To unlock, you **press** the **SAVE** button **5 times** - the Mixer screen will show the word **Unlock**. To fully unlock, **press** the **SYSTEM** button **2 times** -> find **Auto Keyset Lock** -> press **DOWN** to switch to **Mode: ON** (Mixer is still in Lock mode) -> turn the **Control** button, select **OFF** -> press **SAVE** -> press **DOWN** (select **Yes**) -> Mixer is completely unlocked by, now you can adjust all features.

- **System Reset:** select if you want to switch the Mixer back to the factory default settings.

## TECHNICAL SPECIFICATIONS

<b>Model</b>	<b>BA X8</b>
Wireless connection	Bluetooth
Input	6.3mm jack for microphone, RCA and Optical
Output	XLR and RCA
Frequency response range	20Hz - 20kHz
Processor D/A	24bit/192kHz
DSP processor	32 bit
Computer connection	USB 2.0
<b>Dimensions (H x W x Depth)</b>	48 x 480 x 220mm
<b>Weight</b>	2.9 kg