USER MANUAL

T SOUND MAN

X32 · M32 · WING

Setup guide · Feedback Killer AI

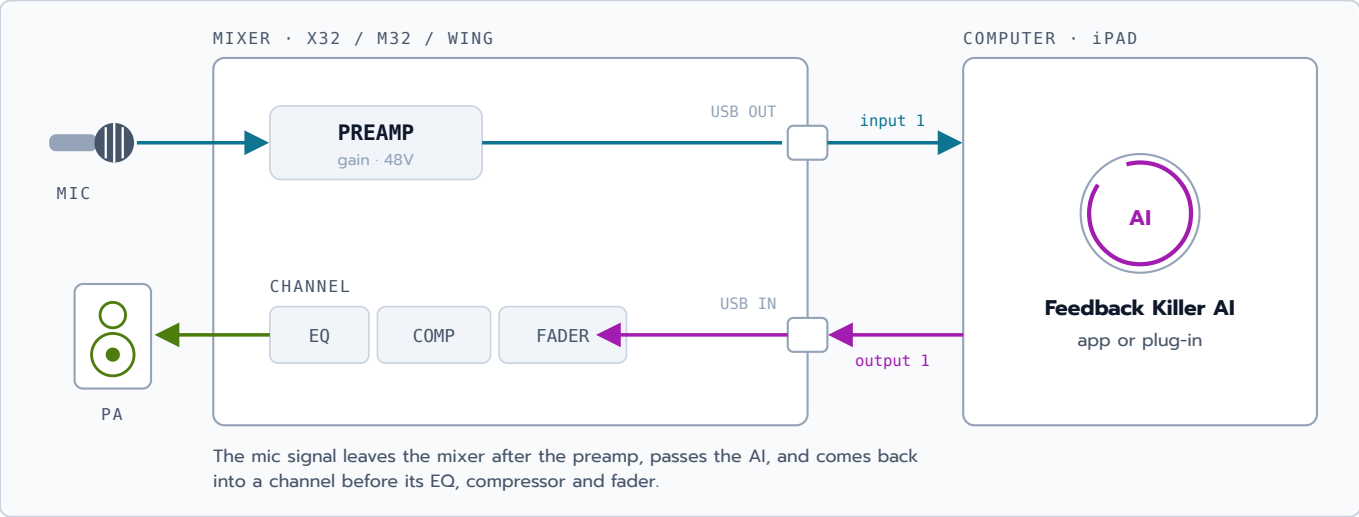
This guide shows how to connect T Sound Man's AI feedback suppression to a **Behringer X32**, **Midas M32** or **Behringer WING** digital mixer with a single USB cable. It covers

- **Feedback Killer AI 16CH** and **AI 8CH** (stand-alone apps for Windows / Mac, no DAW needed)
- the **Feedback Killer AI plug-in** (VST3 / AU) running in Signal Rack or another host
- the **AI 8CH / AI 16CH apps on iPad** and Android tablets, and **AI 4CH on iPhone** and Android phones

> The mixer screenshots were taken in M32-Edit and WING Edit (running offline). They show the same ROUTING / SETUP pages as the mixers' own screens; the X32 uses the same pages as the M32. The device drawings are simplified schematics: real button positions differ between models.

The idea: send the mic to the AI and take it back

The mic signal travels like this: **mic → mixer preamp → USB to the computer or iPad → AI removes the feedback → USB back to the mixer → the channel you mix with → PA**. One USB cable carries dozens of channels in both directions at once.

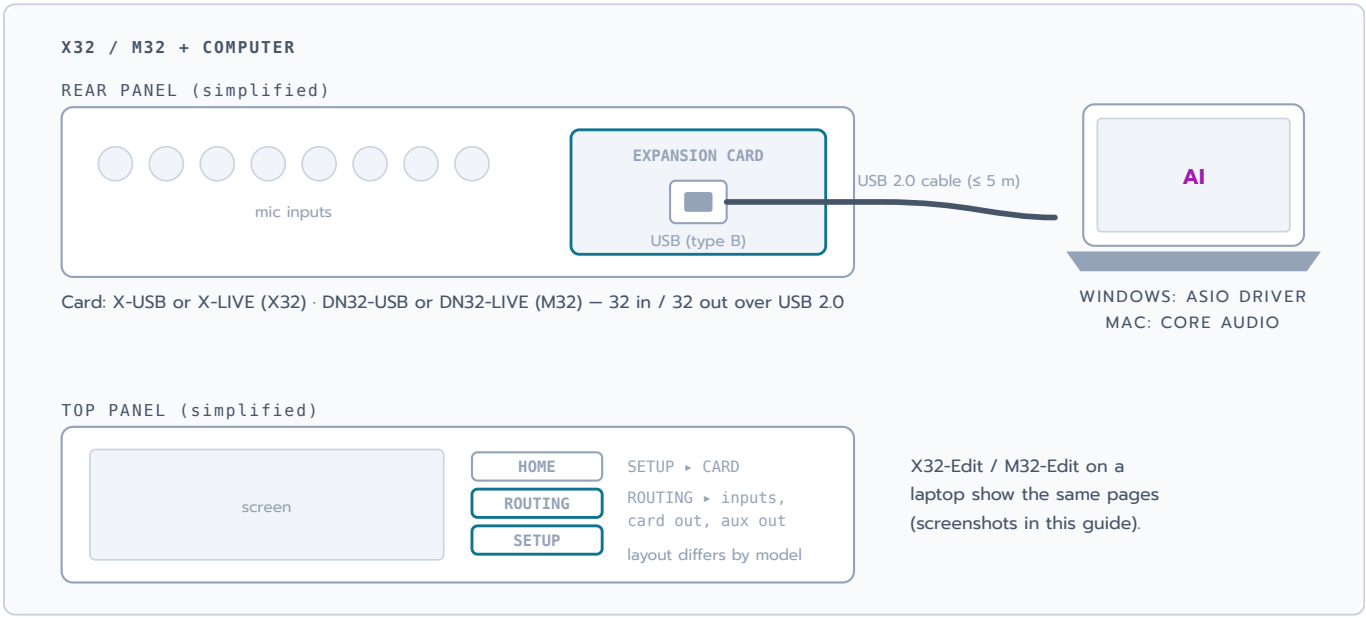


Signal path: mic → preamp → USB → Feedback Killer AI → USB → channel → PA

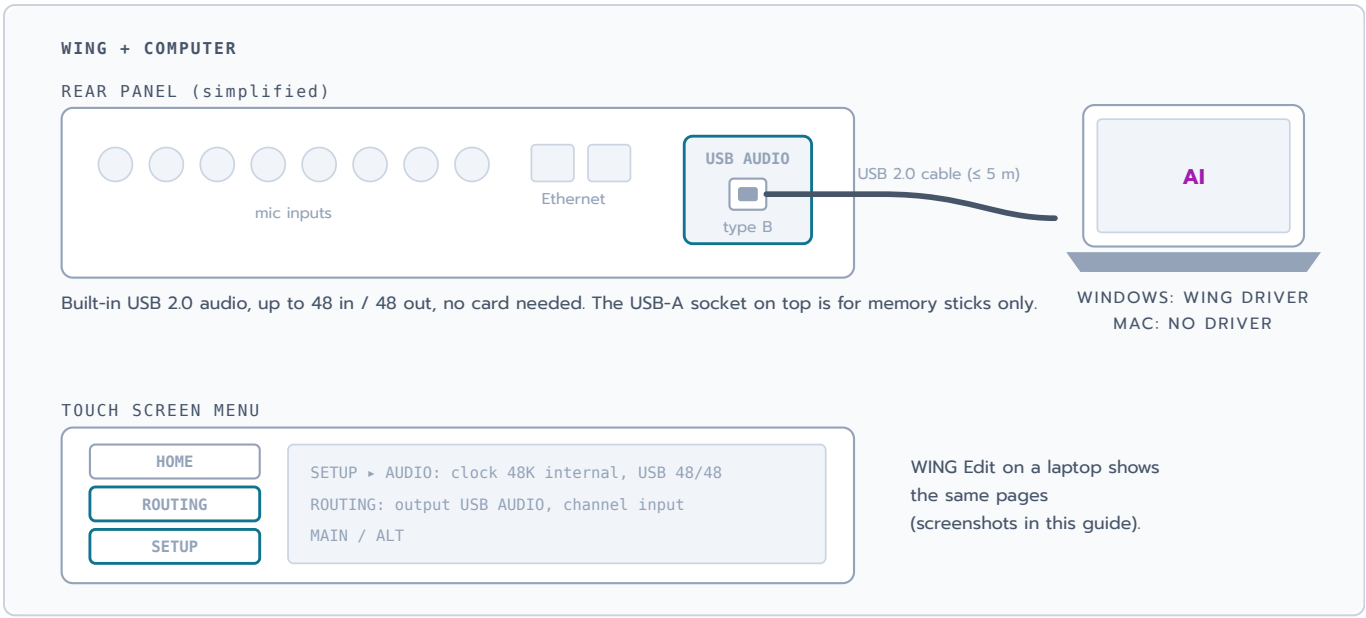
- Our AI **adds no latency of its own** (zero latency). What you add is the USB round trip of the mixer's audio interface, usually about 5–9 ms at a 64-sample buffer (see "Latency").
- The AI is made for **vocal and speech mics**. There is no need to send instrument mics through it.

What you need

- **X32:** a USB card in the rear slot, **X-USB** or **X-LIVE** (32 in / 32 out). Most X32s sold in recent years ship with an X-LIVE.
- **M32:** a **DN32-USB** or **DN32-LIVE** card (32 in / 32 out).
- **WING / WING Compact / WING Rack:** built-in USB audio, 48 in / 48 out, no card needed. Use the USB-B socket on the rear; the USB-A socket on top is for memory sticks only.
- **A good USB 2.0 cable**, as short as practical (5 m maximum): USB-B on the mixer side, USB-A or USB-C on the computer side.
- **Computer:** Windows 10/11 64-bit or macOS 10.13 or newer. A 4-core CPU or better is recommended for 16 channels. Use the machine only for audio during the show.
- **Windows drivers:** X32 uses the **X-USB ASIO driver** from behringer.com, M32 uses the DN32 card driver from midasconsoles.com, WING uses the **WING USB driver** from behringer.com (get the latest from that model's Downloads page). Do not use ASIO4ALL or Realtek drivers.
- **Mac drivers:** none needed. All three are class compliant: macOS recognises them through Core Audio.



X32 / M32: the USB card sits in the rear slot and connects to the computer; SETUP and ROUTING are next to the screen



WING: the USB audio socket is on the rear; ROUTING and SETUP are in the touch-screen menu

> Photo from real hardware (to add): the rear of an X32 / M32 with the USB cable in the card, and the rear of a WING with the USB cable in

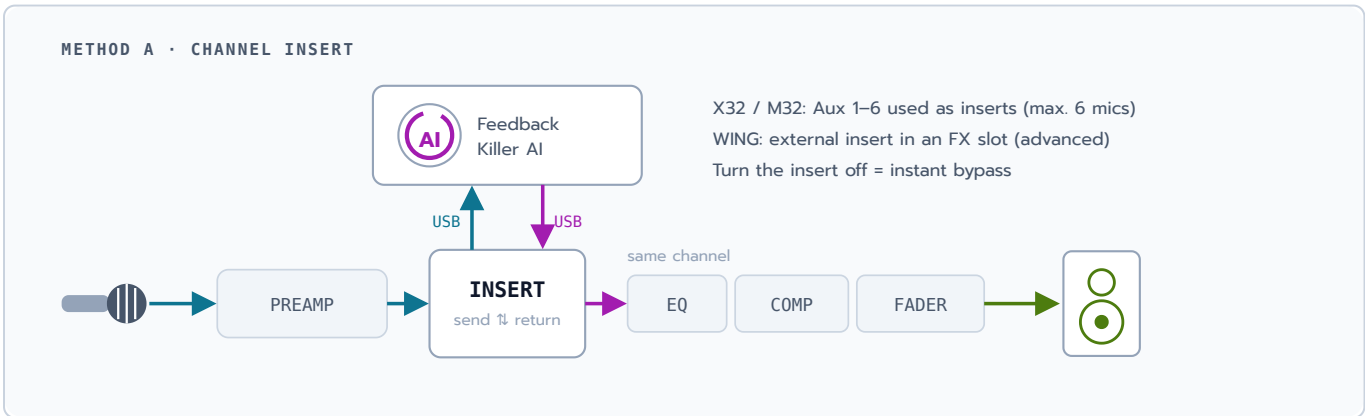
Choose a method

Both use the same USB cable. They differ in where the processed sound comes back.

Method A: insert on the same channel

The mic channel sends its signal from its insert point to the AI and takes it back at the same point, before the EQ, compressor and fader.

- Pros: uses the existing channel; switching the insert off returns to the dry sound instantly.
- Limits: **X32 / M32 manage up to 6 mics** (Aux 1–6 act as the insert points), and Aux In 1–6 cannot be used for anything else. **WING** needs an external insert in an FX slot (uses an effects slot and is harder to set up).

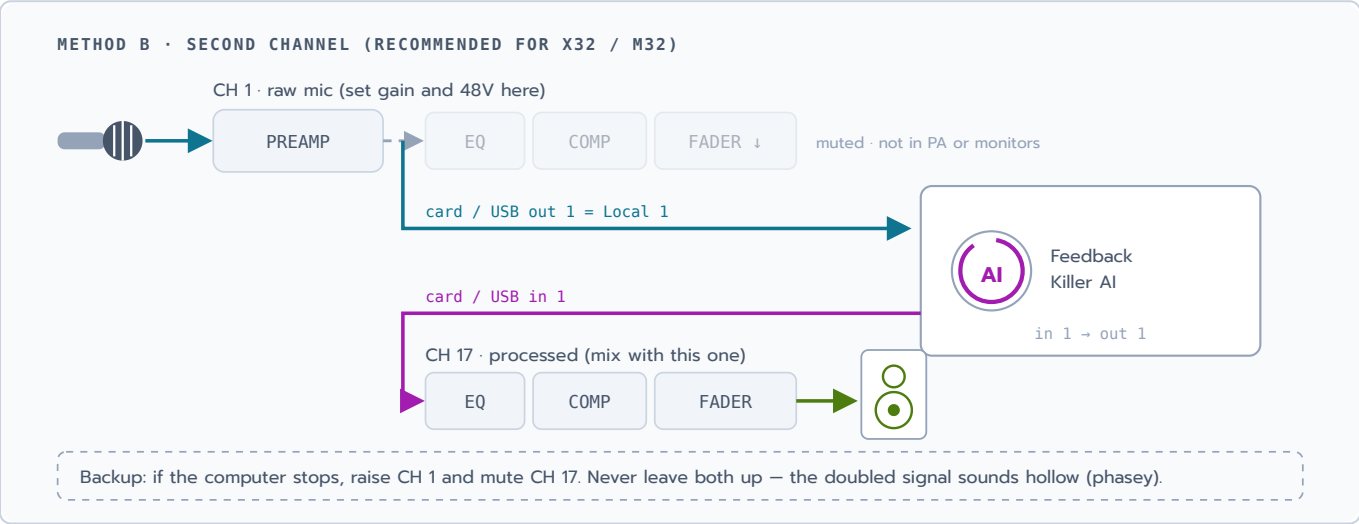


Method A: insert on the same channel, out to the AI and back at the same point

Method B: processed sound on a second channel (recommended for live shows)

The mic goes out over USB straight from the preamp, and the processed sound comes back on a new channel. You mix with the new channel, for the PA and the monitors.

- Pros: all 8 or 16 mics, simple to set up, the AI sits before every EQ and compressor on the channel, and **there is a fallback**: if the computer stops, bring up the original channel in a second.
- Limits: needs one extra channel per mic (an X32/M32 has 32 channels, so 16 mics + 16 processed channels fill it exactly). **Never leave both channels up**: the doubled signal sounds hollow (phasey).
- **WING** does even better: a single channel takes its MAIN source from USB (processed) and its ALT source from the preamp, and one switch flips between them, so no extra channels are needed.



Method B: channel 1 keeps the raw mic (muted), channel 17 receives the processed sound and goes to the mix

> **Our recommendation:** on X32 / M32 use Method B if you have enough free channels (Method A when you have 6 mics or fewer and no free channels). On WING use MAIN / ALT.

X32 / M32 setup

The example uses 8 vocal mics on Local 1–8 (channels 1–8). For 16 mics repeat with the next block: the mixer routes in blocks of 8.

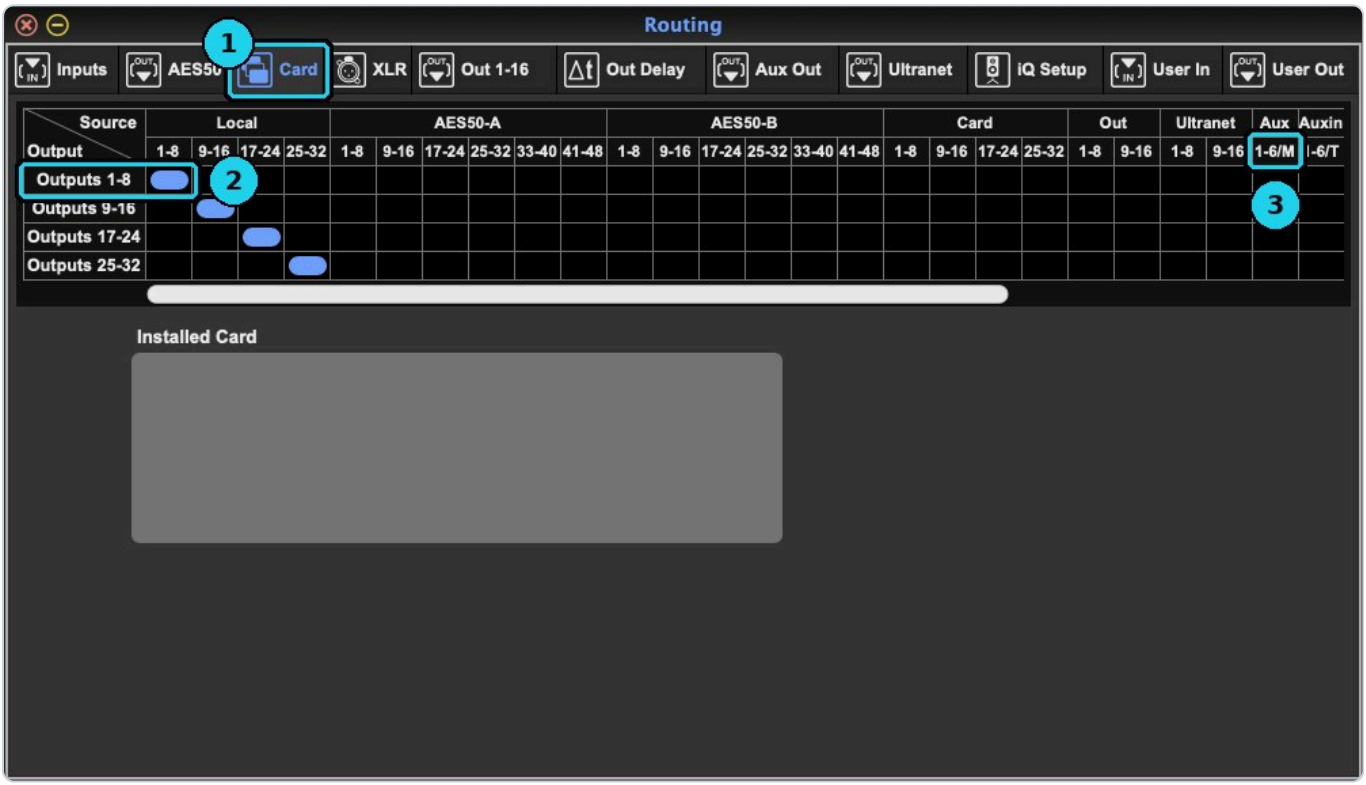
1. Card and clock

1. Press **SETUP**, open the **card** tab and set **32 in / 32 out**.
2. With an **X-LIVE / DN32-LIVE** card, set the card to take its returns from **USB** (not from the SD cards), or the processed sound will not come back.
3. On the SETUP **config** tab set **Sample rate = 48K** and **Synchronization = Internal**. The mixer is the master clock; the card and the computer follow it.

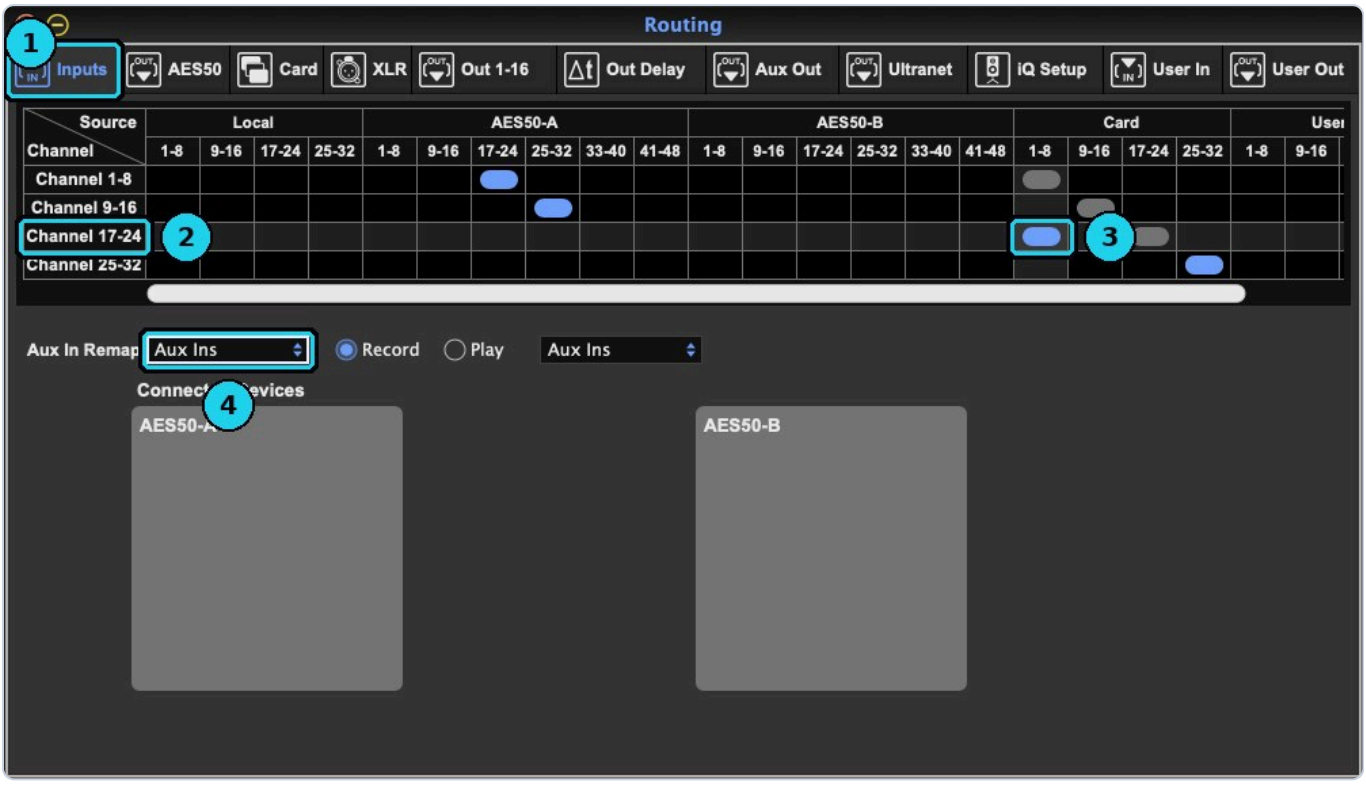
> Photo from a real mixer (to add): the X32 screen at SETUP › card set to 32 in / 32 out, and SETUP › config with sample rate / sync (the Edit apps cannot show these pages offline).

2. Method B: preamps out over USB, back on channels 17–24

1. Press **ROUTING**, **card out** tab: set **Outputs 1–8 = Local 1–8** (many mixers already have this). This sends the signal straight after the preamp, before the channel.
2. **home / inputs** tab: set **Channel 17–24 = Card 1–8**, so channels 17–24 receive the processed sound.
3. On channels 1–8 set gain and 48V as usual (the mic's gain control lives on this channel), then **pull the fader down, take it out of Main LR and mute it**.
4. Mix with channels 17–24: name them (e.g. VOX 1 AI) and put the EQ, compressor and monitor sends on these channels (Copy / Paste copies the settings from the original channel).



M32-Edit › Routing › Card: (1) Card tab (2) Outputs 1–8 = Local 1–8 (3) Aux 1–6/Mon, used for Method A



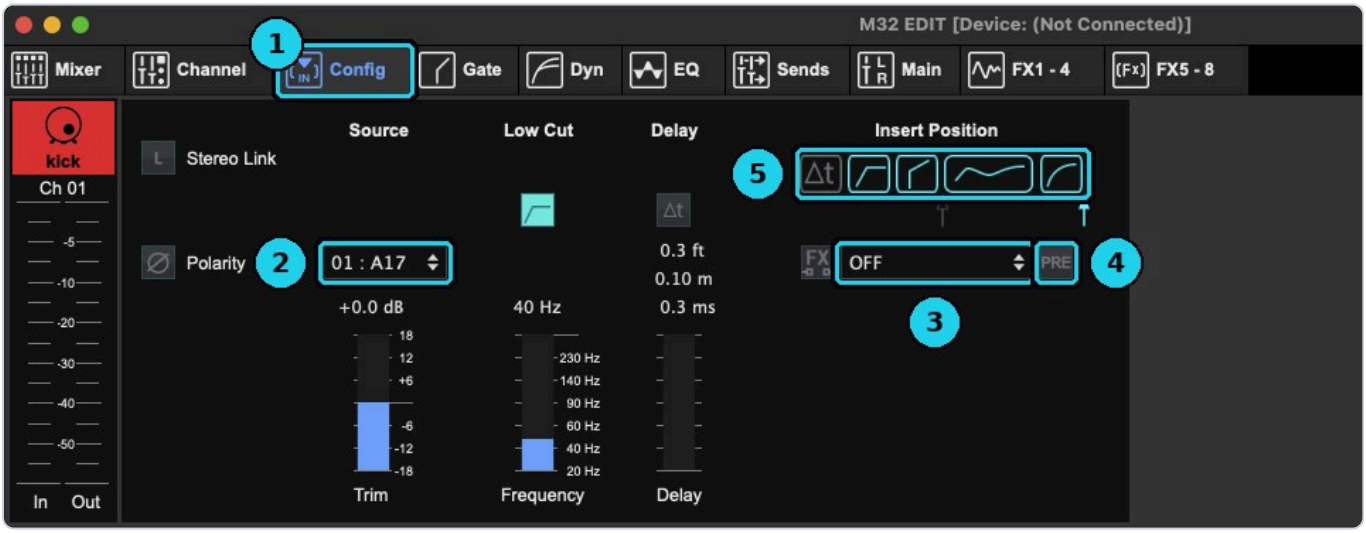
M32-Edit › Routing › Inputs: (1) Inputs tab (2) Channel 17–24 row (3) choose Card 1–8 (4) Aux In Remap, used for Method A

3. Method A: insert through Aux 1–6 (up to 6 mics)

1. **ROUTING › home / inputs:** set **Aux In Remap = Card 1–6** (processed sound from USB 1–6 comes back on Aux In 1–6).
2. **ROUTING › card out:** set **Outputs 1–8 = Aux 1–6 / Mon** (Aux Out 1–6 go out on USB 1–6).
3. **ROUTING › aux out:** set each Aux you use to **Insert**.
4. On the mic channel open **Config**: under Insert choose **AUX 1** (the second mic AUX 2 …), set **PRE** and switch the insert on.
5. Keep the Aux In 1–6 channel faders down so the sound is not doubled in the mix.
6. In the app, the mic inserted on AUX 1 uses Input 1 / Output 1, AUX 2 uses Input 2 / Output 2, and so on.



M32-Edit › Routing › Aux Out: (1) Aux Out tab (2) Ins column = set as insert (the example has Aux 3–6)



M32-Edit › channel Config: (1) Config tab (2) channel source (3) Insert: choose AUX (4) PRE (5) insert position in the channel

WING setup

The example uses 8 mics on Local 1–8, channels 1–8.

1. USB and clock

1. Tap **SETUP › AUDIO**.
2. **AUDIO CLOCK:** clock rate **48K**, sync source **INTERNAL** (the mixer is the master clock).
3. **USB AUDIO IN/OUT: 48/48**, or just what you need (e.g. 16/16).



WING Edit › Setup › Audio: (1) SETUP (2) AUDIO tab (3) clock 48K / INTERNAL (4) USB AUDIO 48/48 (5) INPUT SELECT MAIN / ALT

> Photo from a real mixer (to add): the WING screen at SETUP › AUDIO

2. Preamps out over USB

1. Tap **ROUTING**, then the **outputs** icon (arrow pointing out) at the top.
2. **OUTPUT GROUP = USB AUDIO**, then tap slot **USB 1**.
3. **SOURCE GROUP = LOCAL IN**, then tap **LCL 1**. Continue until USB 2–8 = LCL 2–8 (with +1 AUTO on, the next slot is selected for you).



WING Edit › Routing › outputs: (1) ROUTING (2) outputs icon (3) OUTPUT GROUP = USB AUDIO (4) slot USB 1 (5) SOURCE GROUP = LOCAL IN (6) tap LCL 1

3. Channel takes the processed sound (MAIN) and keeps the preamp as a backup (ALT)

1. In ROUTING tap the **channel input** icon (fader symbol), select channel 1, tab **MAIN**.
2. **SOURCE GROUP = USB AUDIO**, then tap **USB 1**. Continue: channels 2–8 = USB 2–8.
3. **ALT** tab of the same channel: **SOURCE GROUP = LOCAL IN**, tap **LCL 1** (channels 2–8 = LCL 2–8).

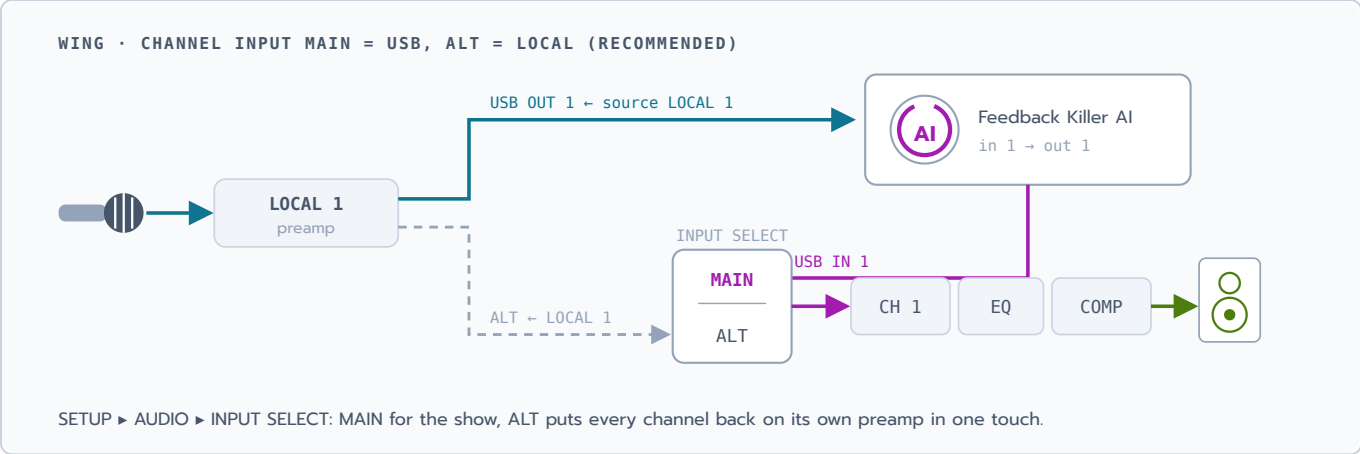
4. **SETUP › AUDIO › INPUT SELECT:** choose **MAIN** for the show. If the computer has a problem, press **ALT** and the channels go straight back to their preamps.
5. **Watch out:** by default WING patches USB 1/2 to **Aux 1**. If you use USB 1–2 for returns, set Aux 1's source to OFF or keep its fader down, or you will hear the sound twice.
6. **Mic gain:** while a channel listens to USB, its gain control only trims the USB signal. Set the preamp gain / 48V at **ROUTING › input page (LOCAL IN › LCL 1)**, or switch to ALT while you set gain.



WING Edit › Routing › channel input, MAIN tab: (1) channel input icon (2) MAIN (3) channel 1 (4) SOURCE GROUP = USB AUDIO (5) tap the USB number that matches the app's output (6) by default USB 1/2 feeds Aux 1



WING Edit › ALT tab: (1) ALT (2) channel 1 (3) change SOURCE GROUP to LOCAL IN and tap LCL 1



WING: MAIN = processed USB return, ALT = preamp, flipped with INPUT SELECT



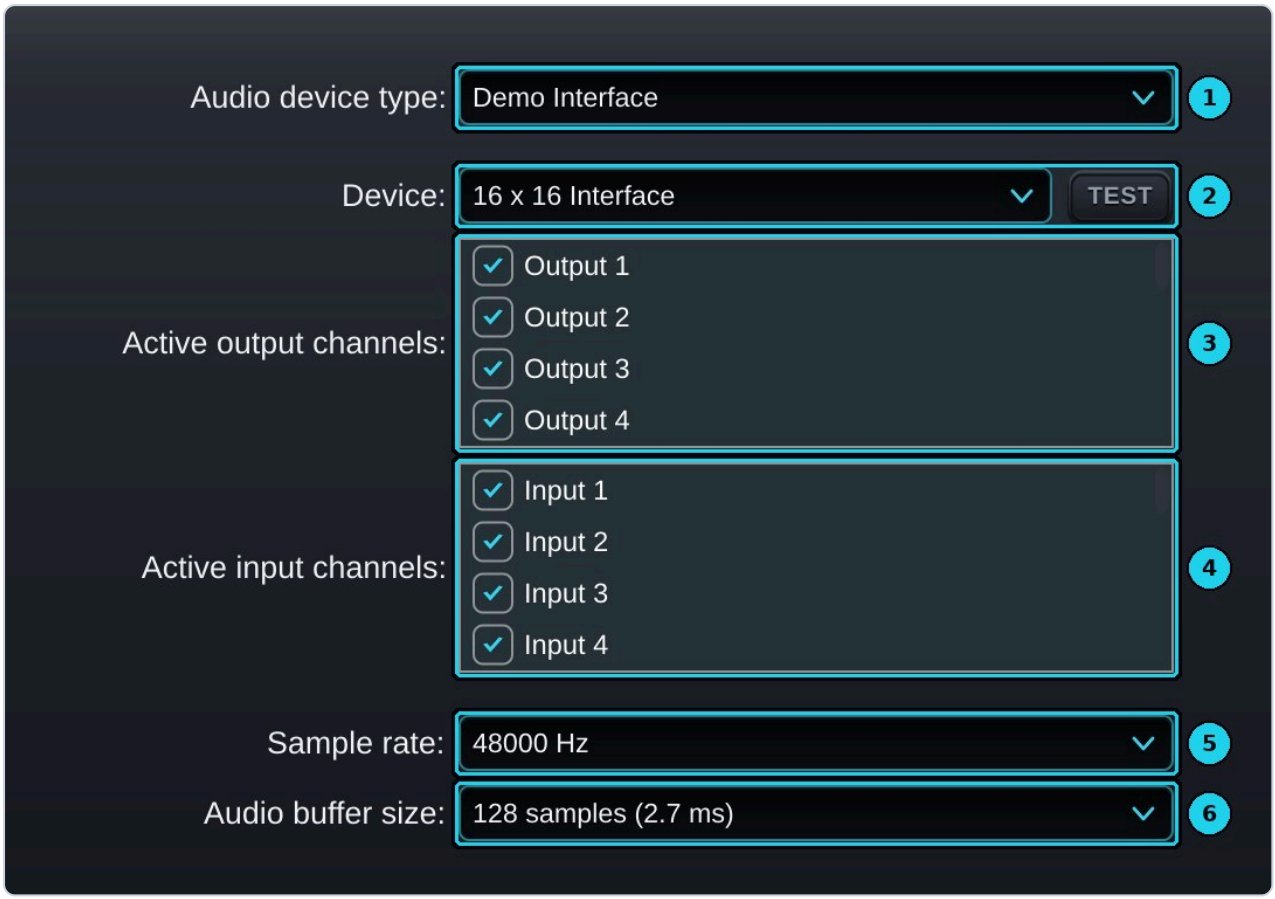
WING Edit › Routing › input page for LOCAL IN: (1) input page icon (2) LOCAL IN (3) LCL 1: gain and 48V are set here

> Method A on WING (an external insert in an FX slot) also works, but it takes an effects slot and is harder to set up. We recommend MAIN / ALT.

App settings on the computer (AI 16CH / AI 8CH)

1. Connect the USB cable, then open the app. On first start it picks an audio device for you.
2. Press **SETTINGS**.
3. **Audio device type: ASIO** on Windows / **CoreAudio** on Mac.
4. **Device:** your mixer (named X-USB, X-LIVE, DN32 or WING depending on the driver).
5. **Active input / output channels:** tick only the channels you use, e.g. Input 1–8 and Output 1–8.
6. **Sample rate: 48000 Hz** (same as the mixer).
7. **Audio buffer size:** start at **128 samples**; if there are no clicks, try **64**.
8. Press **ROUTING**, tick the channels you use, set **Input** = the USB channel carrying that mic and **Output** = the USB channel going back (Method B above: channel 1 Input 1 → Output 1 … channel 8 Input 8 → Output 8).

9. Name the channels after the mics, check that every AI button shows **WORKING**, then press **SAVE**.



SETTINGS: (1) audio device type (2) device (3) active output channels (4) active input channels (5) sample rate 48000 (6) buffer



ROUTING: (1) tick the channel (2) Input = USB channel from the mixer (3) Output = USB channel back to the mixer

> Screenshot (to add): the app's SETTINGS with a real X-USB / WING device selected and the status line showing the real latency

Using the plug-in in Signal Rack or another host

The mixer side is exactly Method A or B; the host simply replaces the AI 16CH app.

1. In Signal Rack choose the mixer as the audio device (Windows: ASIO), 48 kHz, buffer 64–128.
2. Make one column per mic: input = that mic's USB channel, output = the USB channel going back.
3. Put **Feedback Killer AI** in the first slot of the column and press its AI button.
4. Signal Rack hosts **VST3** plug-ins; other hosts can use VST3 or AU. The plug-in adds no latency.



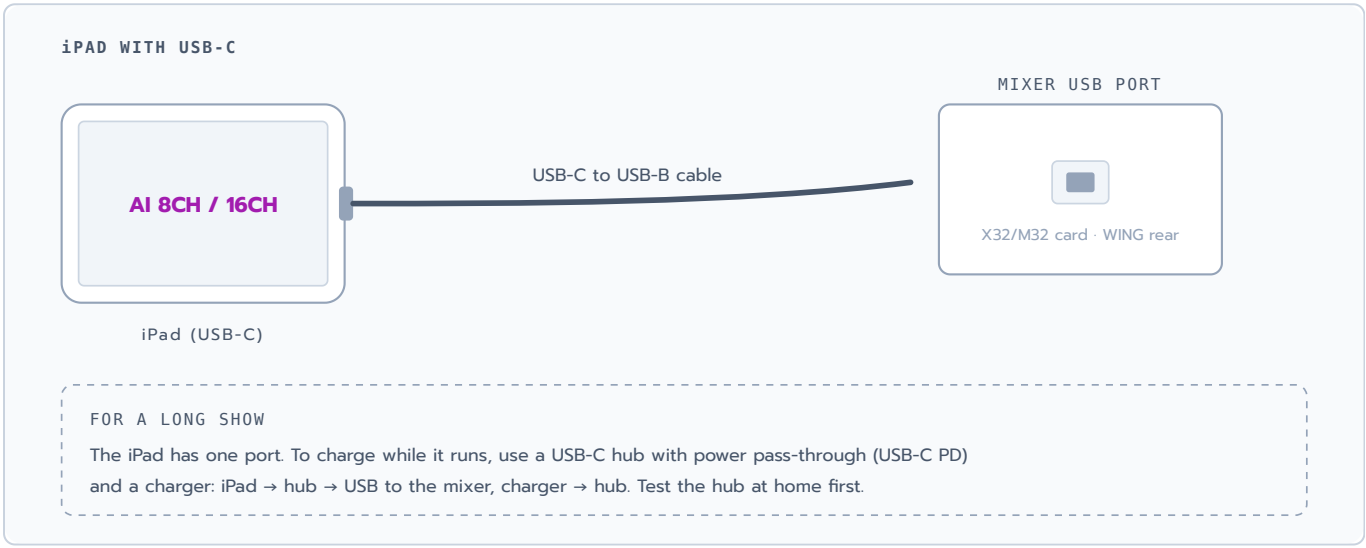
Signal Rack: one column per mic, USB in → Feedback Killer AI → the same USB channel out

iPad, iPhone and Android tablets

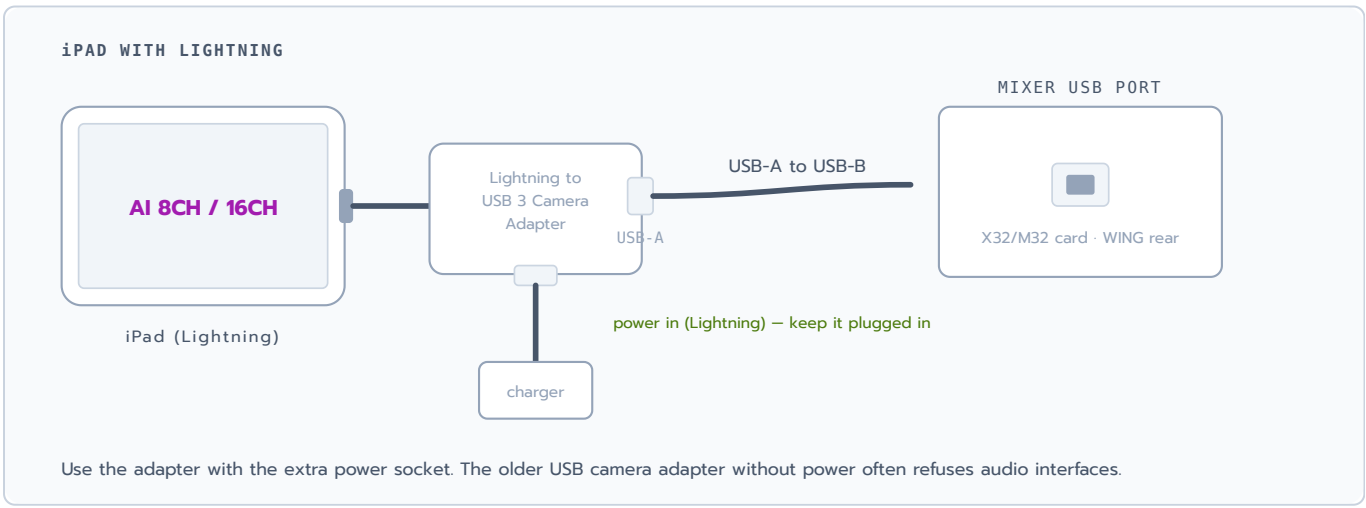
- **AI 8CH / AI 16CH** run on **iPad** and **Android tablets**; **AI 4CH** runs on **iPhone** and **Android phones**.
- The mixer side is the same as with a computer (Method A or B, MAIN / ALT on WING).

Cables

- **iPad with USB-C:** a **USB-C → USB-B** cable straight to the mixer. For long shows use a USB-C hub with power pass-through (USB-C PD) and a charger so the iPad charges while it runs. Test the hub at home before the gig.
- **iPad with Lightning:** use the **Lightning to USB 3 Camera Adapter** (the one with a power socket), keep a charger plugged into it, then a **USB-A → USB-B** cable to the mixer. The older adapter without a power socket often refuses audio devices.



iPad USB-C: USB-C → USB-B cable straight to the mixer, or through a powered hub

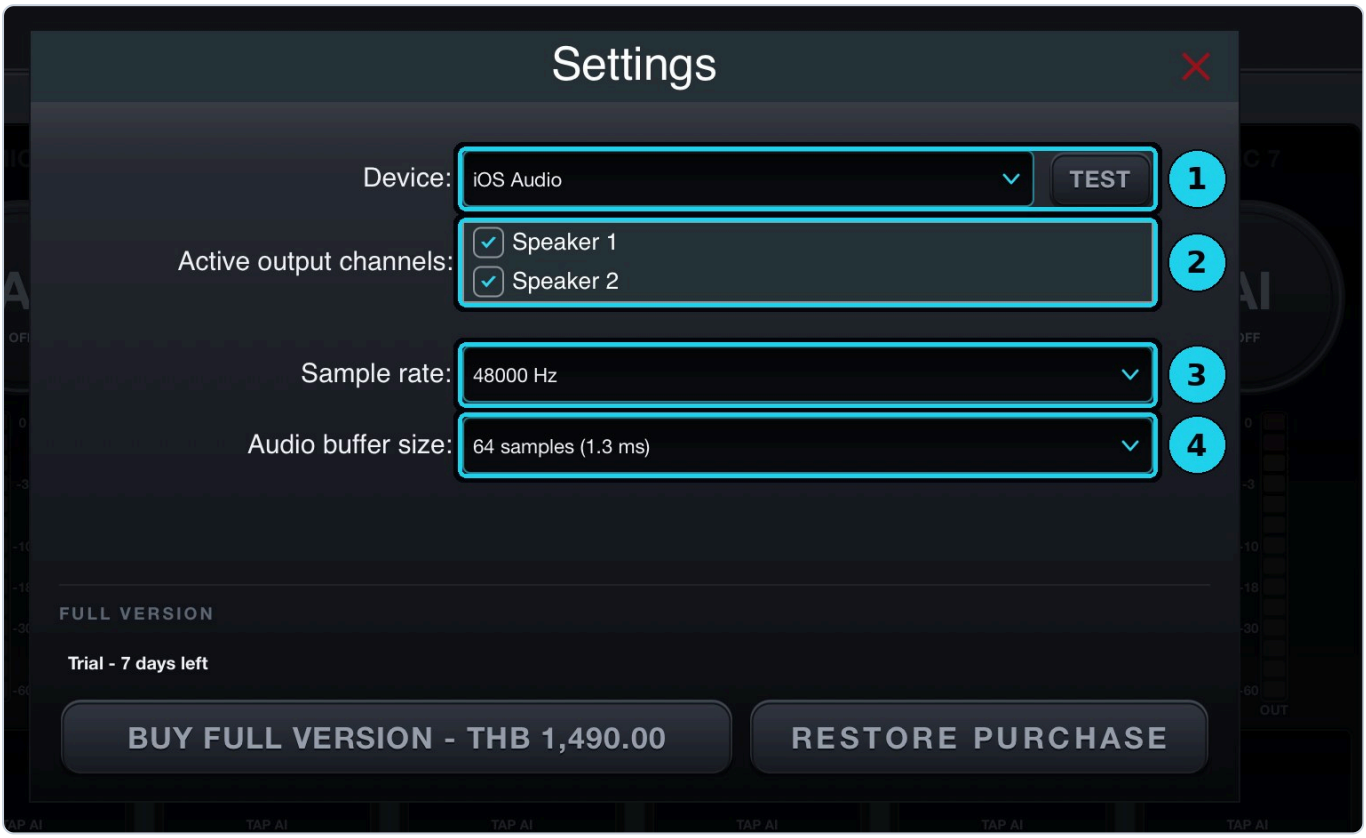


iPad Lightning: Lightning to USB 3 Camera Adapter + charger, then USB-A → USB-B

App settings

1. Connect the cable first, then open the app. The app uses the audio device iPadOS has selected; when the mixer is plugged in, iPadOS switches to it.

2. **SETTINGS:** check sample rate **48000 Hz**, buffer **64–128 samples**, and tick the outputs you use.
3. **ROUTING:** tick the channels and choose Input / Output from the mixer's USB channels, as on a computer.
4. The bottom-left status line shows sample rate, buffer and **RT latency** (in samples; divide by 48 for milliseconds).



iPad app › SETTINGS: (1) audio device (2) output channels (3) sample rate (4) buffer — shown without a mixer; with one connected the lists show the mixer's USB channels



iPad app › ROUTING: (1) tick the channel (2) Input (3) Output

Before the show

- Turn off Auto-Lock: **Settings › Display & Brightness › Auto-Lock › Never** (the app already keeps the screen on; this is a second safety).
- Turn on **Do Not Disturb / Focus** so no notification pops up during the show, and close other audio apps.
- To stop anyone leaving the app, use **Guided Access** (Settings › Accessibility › Guided Access), then triple-click the side or Home button to lock the iPad to the app.

Android tablets and phones

- Android 8 or newer with **USB audio (class compliant)** support on the USB-C / OTG port.
- **Support varies a lot between brands and models.** Some devices show only 2 channels or do not see the mixer at all. Test with the real mixer before relying on it (the 7-day trial is there for that).
- Some brands need **OTG** switched on in Settings and the app's battery setting on "unrestricted / allow background activity".

> We have not yet tested every iPad and Android model with X32 / M32 / WING. If the app shows only 2 channels or no mixer, send us your device and mixer model on LINE and we will help.

Latency

- T Sound Man's AI **adds 0 ms**. All the delay comes from the USB interface and the buffer size.
- The X32 / M32 USB cards measure roughly **5–7 ms round trip on Windows (ASIO)** and **8–9 ms on a Mac** at 48 kHz and 64 samples; 128 samples adds about 2.7 ms (user measurements; they depend on the computer and driver).
- Your own figure is in the app's **status line at the bottom** ("RT latency" in samples; divide by 48 for milliseconds).
- Front-of-house speakers and wedges are fine with this much delay. Some singers notice it in **in-ear monitors**. In-ears cannot cause feedback, so you can feed them from the raw mic channel (Method B: don't mute the raw channel; keep its fader down and out of Main LR, and use only its pre-fader sends to the in-ear mixes).

Gain staging and a quick test

1. Set the mic gain on the mixer so normal singing sits around **-18 dBFS** and peaks stay below **-6 dBFS**. The USB card sends the same level the mixer meters show, so the app's IN meter should read about the same.
2. Talk or clap into mic 1: the raw channel meter moves → the app's channel 1 **IN** and **OUT** meters move → the channel you mix with (e.g. 17) moves.
3. Mute the channel you mix with: the sound must disappear from the PA (proof that the PA gets the processed channel).

4. Check that the AI button shows **WORKING**, then slowly raise the PA or monitor towards feedback. The AI cuts that frequency (pink line on the RTA, pink channel frame) before the howl gets loud.
5. Press **BYPASS** in the app: the sound still passes (no silence). Use it to check whether a sound problem comes from the app.

Troubleshooting

- **No signal in the app:** check the Device, that the inputs are ticked in SETTINGS, that the card is 32 in / 32 out (WING: USB 48/48), and that card out / USB out takes the mic's Local input.
- **Signal reaches the app but not the mixer:** check the outputs in the app's ROUTING, that the mixer channel takes the same Card / USB number, and that an X-LIVE / DN32-LIVE takes its returns from USB, not SD.
- **Wrong channels (mic 2 comes out on channel 3):** count the same numbers in all three places: card out on the mixer → Input / Output in the app → source of the return channel.
- **Clicks, crackles or dropouts:** raise the buffer to 128 or 256 / plug the cable straight into the computer, not a hub / use a shorter cable / Windows: High performance power plan and USB selective suspend off / Mac: keep the charger connected / close other programs.
- **Hollow, phasey or doubled sound:** the raw channel and the processed channel are both in the mix (Method B), Aux In 1–6 are up (Method A), or WING's Aux 1 is playing USB 1/2. Keep one path only.
- **Feedback still happens:** the AI button must show WORKING (not BYPASS / OFF) / the PA must come from the processed channel, not the raw one / the howling mic must be in the app / a speaker pointing straight into a mic or extreme gain is beyond what any processor can fix — position the speakers well too.
- **Mac: no input at all:** allow the microphone for the app in **System Settings › Privacy & Security › Microphone**, restart the app, and check in **Audio MIDI Setup** that the mixer runs at 48000 Hz.
- **Windows: the mixer is not in the ASIO list:** install that model's driver before connecting, then restart / in SETTINGS choose Audio device type = ASIO and the mixer's driver (not ASIO4ALL) / if the buffer cannot be changed in the app, set it in the driver's control panel.
- **iPad / Android shows "CONNECT A USB AUDIO INTERFACE" or "RECONNECT USB INTERFACE":** re-plug the cable, unlock the screen, check the adapter and power (Lightning: charger in the adapter), then reopen the app.
- **iPad shows "CHECK USB I/O - ACTIVE ROUTE UNAVAILABLE":** a channel uses a channel number the device does not have, e.g. the card is set to 8/8 or 2/2. Set the card to 32/32 or pick another channel in ROUTING.
- **iPad only sees its built-in microphone:** iPadOS has not recognised the mixer. Try another cable / adapter or a powered hub; if it still fails, contact us.