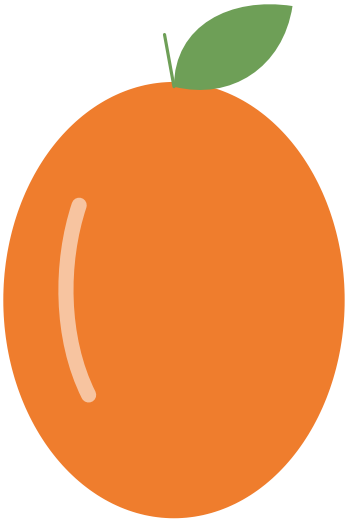


# KA Mic Blend

Instruction manual

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kumquataudio.com

NO. 7

# KA Mic Blend

Blends two mics on one source, and lines them up.

KA Mic Blend mixes two microphones on one source with a single control, and lines them up. When two mics hear the same sound at different distances, one arrives late, and if it is also upside down the two cancel each other and the sound goes thin. Align measures this and sets it right.




**FIG. 1** The parts of KA Mic Blend. The numbers are explained on the next page.

## Parts

fig. 1

1. **A and B**
   How much of each mic is in the blend. With a stereo track A is the left channel and B the right; with a sidechain, A is the track and B the sidechain.
2. **Sway**
   The blend: all the way left is only A, all the way right only B.
3. **B offset**
   Delays B so that it lines up with A. Align sets it.
4. **Flip B polarity**
   Turns B upside down. Align sets it when the two mics fight each other.
5. **Blend law**
   Linear for mics that are in time, Equal power for mics that are apart.
6. **Align**
   Play the source, then press it: it measures the timing and polarity of A and B.
7. **Alignment on**
   Switches the alignment off and on so you can hear what it does.
8. **Status**
   What the alignment is doing, or what it found.
9. **Phase meter**
   Shows whether the two mics add up (in phase) or cancel (out of phase).
10. **In and Out**
    In turns both mics up or down before the blend. Out turns the blend up or down.

## Operation

step by step

1. Put the plug-in on a stereo track that holds the two mics (A is the left channel, B the right), or on a track with the other mic in the sidechain (A is the track, B the sidechain).
2. Play the source and press Align. It listens for a moment, analyses, and sets B offset and Flip B polarity.
3. Move the Sway slider to blend the mics: all the way left is only A, all the way right only B.
4. Switch Alignment off and on to hear what it does. What was measured is kept.
5. Choose Linear for mics that are in time, Equal power for mics that are apart.

## Controls and settings

range · start

| Control | Range | Starts at | What it does |
|---|---|---|---|
| **Sway** | –100 to +100 % | 0 | The blend of A and B. |
| **B offset** | –10 to +10 ms | 0 | Delays B to line it up with A. Align sets it. |
| **Flip B polarity** | on / off | off | Turns B upside down. Align sets it. |
| **Alignment on** | on / off | on | Switches B offset and the flip off and on. |
| **Blend law** | Linear / Equal power | Linear | How the two add up as you move the slider. |
| **In / Out** | In ±24, Out –24 to +12 dB | 0 dB | In turns both mics up or down before the blend; Out turns the blend. |

**TIP** Play something with a clear start while it listens: a drum, a word, a strummed chord.

## Specifications

| | |
|---|---|
| **Formats** | Audio Unit, VST3 |
| **Channels** | stereo, or one track and a sidechain |
| **Delay** | 484 samples (10 ms at 48 kHz): fixed, so that Align can move B either way |
| **Window** | 700 × 420, can be resized |

## How it works

a closer look

When two mics hear the same sound at different distances, the sound reaches one later than the other. Blended together, the two copies comb against each other and the sound goes thin; if one mic is also upside down to the other, they cancel.

Align plays the source and compares A and B at every offset up to ten milliseconds, either way, and in both polarities. It picks the setting where the two agree most, sets B offset and Flip B polarity, and keeps what it found.

Because B might have to move earlier or later than A, the plug-in always delays both by the longest offset (about 10 ms) and moves B within that, so the delay your music software is told about never changes.

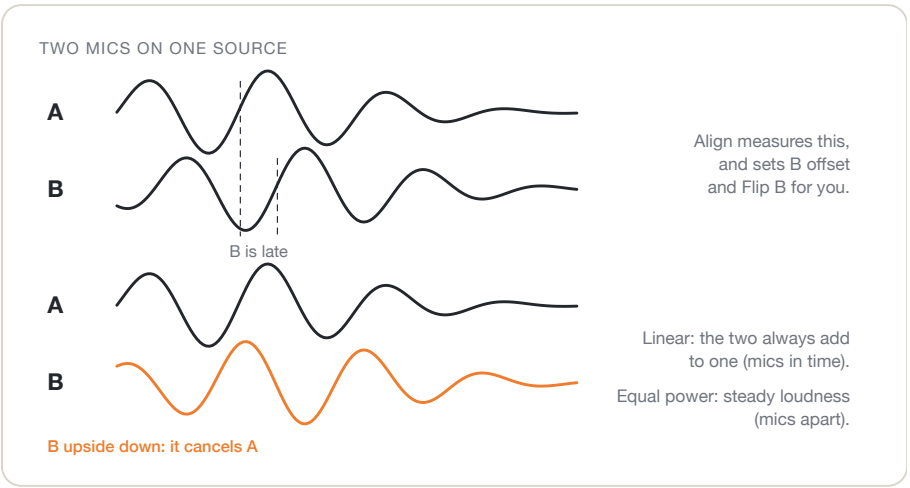



**FIG. 2** What Align measures: the delay of B, and whether it is upside down.

EVERY INSERT PLUG-IN

# In, Out and Gain Match

Along the bottom of most windows is a strip with two knobs, one under each level meter, and two buttons. In turns the sound up or down before the plug-in hears it, and Out turns the result up or down. Double-click either knob to return it to 0 dB. Bypass plays the sound without the plug-in (it stays in time with the other tracks, and fades in and out without a click); your music software's own bypass button for the plug-in does the same. The four plug-ins that read whole recordings, and KA Limiter, have the Bypass button at the top of the window instead.

A louder sound almost always seems better, even when it is not. That is how a setting can fool you: you turn something up, the sound gets louder, and you think it got better. Match takes that away. When it is on, the plug-in listens to how loud the sound is as it arrives and as it comes out, and turns the output up or down by the difference, slowly, so the two stay the same. That includes In: drive the plug-in harder and the output stays where it was. Now when you change a setting you hear what it did to the sound, and nothing else. Out is then yours to trim on top.

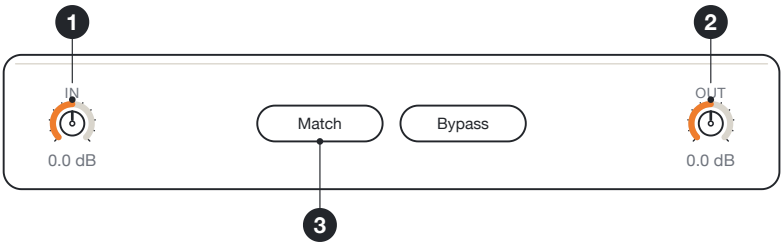



FIG. 3 The strip along the bottom of a window.

1 **In**
Turns the sound up or down before the plug-in hears it.

2 **Out**
Turns what comes out up or down.

3 **Match**
Keeps the output as loud as the sound that came in, whatever In and the plug-in do. The number beside it shows how much it is adding or taking away.

Use In to drive a plug-in harder or softer: more In into KA Saturator or KA Bus Comp gives more effect. Use Out to set the level you want to leave with; with Match on it moves the level up or down from the level that arrived. The number beside Match shows how much it is adding or taking away.

## Who has what

In, Out and Match

| Plug-in | The strip has | Note |
|---|---|---|
| **KA De-Esser** | In · Out · Match | Match is on hold while Listen is on. |
| **KA De-Noise** | In · Out · Match | Match is on hold while Listen is on. |
| **KA De-Verb** | In · Out · Match | Match is on hold while Listen is on. |
| **KA De-Click** | In · Out | It changes the level so little that matching is not needed. |
| **KA EQ** | In · Out · Match | Out is the level after the EQ and the suppressor. |
| **KA Bus Comp** | In · Out · Match | Makeup is still there as the compressor's own make-up gain. |
| **KA Saturator** | In · Out · Match | Drive already keeps the level close; Match finishes the job. |
| **KA Zing** | In · Out · Match | Match is on hold while Delta is on. |
| **KA Contour** | In · Out · Match | Match is on hold while Listen is on. |
| **KA Mic Blend** | In · Out | In is applied to both mics, including the sidechain. |
| **KA Delay** | In · Out | Mix is meant to change the level, so there is no Match. |
| **KA Multiband Comp** | In · Out · Match | Each band has its own Gain as well. |
| **KA FET Comp** | In · Out · Match | In is the compressor's Input: the threshold is fixed. |
| **KA Opto Comp** | In · Out · Match | Out is the compressor's make-up gain. |
| **KA Rider** | In · Out | Match would undo the ride, so there is none. Delta plays only the ride. |
| **KA Chladni, KA Root** | none | Instruments have no audio input, so no In, Out or Match: use the Level drawing. |
| **KA Reverb** | In · Out | Mix is meant to change the level, so there is no Match. |

**TIP** To set a compressor or a saturator fairly: turn Match on, switch the plug-in off and on, and choose the setting that sounds best at the same loudness.

**CAUTION** KA Limiter has no In and Out: its Threshold is its input and its Ceiling is its output. The four plug-ins that read whole recordings do not have the strip. Every plug-in has a Bypass button.

CARE

# Care and troubleshooting

| If this happens | Do this |
|---|---|
| **A plug-in does not appear in the list** | Restart the music software. In Logic Pro, open the Plug-in Manager, select the Kumquat plug-ins and choose Reset & Rescan Selection. |
| **An old name is still showing** | Quit Logic with Cmd+Q and open it again. If it persists, remove the old copies from /Library/Audio/Plug-Ins/Components. |
| **My key was not accepted** | Copy all of it, from KA1 to the end, with no spaces added or lost. A key for one plug-in does not unlock the others. |
| **The pop-up help does not show** | Press the “?” at the top of the window to turn it on. It is one choice for all the plug-ins. |
| **Which part of the picture does a knob change?** | Point at the knob, or hold it down while you turn it: the part of the picture it controls lights up, with the knob’s name and value. |
| **KA Drum Gate, Silence Trim, Auto Mixer or Time Align shows a message instead of a picture** | Open Logic Pro using Rosetta, put the plug-in first in the Audio FX list, select a region and press play. |
| **The sound is late** | KA De-Click, De-Verb, De-Noise, Contour, Mic Blend, Saturator (it oversamples), EQ (with the suppressor), Multiband (in Linear phase) and Limiter delay the sound a little and tell the music software, which lines everything up. Do not compensate by hand. For playing through a plug-in, the Saturator, EQ and Multiband have a Live switch that takes the delay away; the compressors, De-Esser, Delay, Reverb and Rider have no delay at all. |
| **A window is too small or too big** | Drag the corner at the bottom right. The size is remembered, and it is the same for all the plug-ins: make one bigger and the others open that big. |
| **The Limiter pumps** | Leave Release on Auto, or set 60 to 100 ms. A release of a millisecond or two is the dirtiest setting. |

If something is not right, write to **audiokumquat@gmail.com** and say which plug-in, which music software, and what you were doing.

FOR YOUR OWN NOTES

# Notes