



## WELCOME TO AR-1

AR-1 is a variable-mu tube compressor whose roots are in the raucous sound of the rockin' American 50's, yet it enjoys a posh, tea-sipping British image thanks to its use at Abbey Road Studios in late 60's, notably on the later Beatles and earlier Pink Floyd records. Kush painstakingly captured the sweet breakup of AR-1's beefy tubes being driven into the dirt, then added more than a half dozen significant UI and functional enhancements. The resulting emulation is every bit as chunky as the original, and 10x more flexible.

For starters, you get to see the actual values of the controls (!!!). The release is fully variable (as opposed to stepped) and both attack & release can be set significantly faster than the original hardware, allowing for a much wider range of compressive 'voices' and textures..

But the real magic of AR-1 lies under the hood, with new algorithms that step Kush's digital compressor technology forward. One of the most common complaints about plugin compressors (and digital sounds in general) is that they're "too fast". Even when a plugin's attack time measures identical to the hardware, it generally sounds markedly different, resulting in transients that are excessively bright while lacking in low end impact.

Kush has addressed this by using our most sensitive measuring equipment --- UBK's ears --- to obsessively tune not just the speed, but also the taper of the attack and release. As a result, AR-1 is a gentle beast that's still capable of cooking a sound to a deliciously charred crisp. 'Warm' and 'Smooth', arguably the most overused marketing terms in the audio world, really do apply. So be adventurous, and see where she'll take you!

# AR-1

## DEEPER INTO THE CONTROLS

### THE CONTROLS



#### TONE

The tone is designed less as a “corrective eq” and more as a “mild flavor” that gently tilts sounds in one of two directions.

CCW (Lift) pairs 60’s-era vintage shelving upwards at 80Hz and 8k with a subtle softening of the hard mids (2.5k). If you want things a little shinier and more relaxed or “hi-fi” feeling, this is the way to go.

CW (Dark) gently pushes 60’s ‘thick’ frequencies in the LMF (150) and MF (800), while easing up on “shiny” HF’s (4k and 10k). If you want things to feel warmer with a more solid foundation, this one’s hard to beat.

NOON is neutral, meaning all ‘voicing’ eq’s are flat and the tonal shift of AR-1 comes exclusively from the harmonic distortions, which are significant even at conservative input levels.



#### INPUT

Adjusts the gain of the signal +/-24dB as it enters the compressor. Higher Input levels equal more distortion and, if the threshold is set low enough, more compression as well. For a dirty sound, drive the Input hard and use a higher Threshold for compression. For a cleaner sound, keep the Input low and dig in deeper with the Threshold.

To get the most out of the AR-1 and better understand how it likes to be set up and gain-staged, see Tip #1: Gain-staging the AR-1 on page 5 of this manual.



#### OUTPUT

Adjusts the output gain of the AR-1 +/- 24dB.



#### I/O LINK

Engaging this switch links the Input and Output control by a 2:1 (50%) ratio, meaning that for every dB of Input gain you add, AR-1 will decrease the Output by 1dB. This may seem odd, until you realize that this control is optimized for use when the compressor is actively compressing. Since AR-1 is a roughly 2:1 compressor, when you increase Input during compression by 2dB, the output level only rises by 1dB, therefore the Output control only needs to be attenuated 1dB to bring the overall gain back to unity.

For a more hands-on explanation of when and how to use the IO Link control, we again highly recommend you follow the gain-staging procedure in Tip #1: Gain-staging the AR-1 on page 5 of this manual. Not only will it clarify what gain-staging is and why it’s a good skill to have, you can then use that knowledge to investigate whether other plugins which claim to be analog-modeled compressors actually behave the way analog does :-)

# AR-1

## DEEPER INTO THE CONTROLS

### THE CONTROLS

---



**THRESHOLD** From 0dBu to -50dBu, turning this knob clockwise lowers the point at which the compressor engages. Turning this knob FULLY counterclockwise disables the compression circuit entirely, but retains the input/output circuitry. This turns AR-1 into a very capable dirtbox with some of the loveliest distortion on the planet.



**ATTACK** Fully variable attack speed ranges from 1ms (which is considerably faster than the original hardware) up to 50ms.



**RELEASE** Fully variable release ranges from 50ms (which is exponentially faster than the original) up to 2000ms. Clicking directly on Releases #1-4 will emulate the most popular timings of the hardware.



**MIX** Standard-issue mix knob adjusts the ratio of wet/dry signal for all your parallel compression needs.



**S/C HPF** Activates a 6dB/octave, 60Hz High Pass Filter in the sidechain, reducing unwanted pumping from low frequencies being fed to the compressor. Because this filter is in the sidechain, it does not affect the frequency response of the audio path, it simply shapes how the compressor responds to bass information.

# AR-1

## DEEPER INTO THE CONTROLS

### DSP / AUXILIARY CONTROLS



**BYPASS** Bypasses AR-1

**OVERSAMPLING ON/OFF** This switch toggles Kush's proprietary oversampling algorithm and filters, freeing up critical CPU cycles. This is a session-wide preference, so toggling the Oversampling for one AR-1 automatically toggles it for every other AR-1 in the session.

**POLARITY (Ø)** Toggle this switch to invert the polarity (aka "flip the phase") of AR-1's Output.

**HELP** Press this button to go directly to the online version of this manual anytime.

**AR-1 INFO** Click to view the back-story behind all these fancy controls.

**SIDECHAIN: INTERNAL/EXTERNAL** Click to toggle whether AR-1's compressor responds to the signal coming into its Input, or whether it responds to the signal routed in from elsewhere via your DAW's external sidechain functionality.

### PRESET MANAGEMENT



**BANK** Banks are a handy way to organize groups of Presets into categories. Select a bank by clicking directly on the current bank name to reveal a drop-down list. Select New to add a new bank to this list. 'Rename' allows you to rename the current bank, editing directly on the name itself. 'Delete' will delete the current bank AND ALL OF THE PRESETS within that bank. This cannot be undone, so choose carefully!

**PRESET** A Preset stores the state of every knob and switch on the main GUI, as well as the state of the Polarity and Linked switch. Select a Preset by clicking on the current Preset name and choosing from the drop-down list. 'Save As' creates a new Preset in the current bank. 'Save' overwrites the current Preset.

**STATUS LED** Green indicates that the AR-1's settings are identical to the selected Preset. Red indicates that controls have been changed since the Preset was loaded. WARNING: If you load a Preset when the Status LED is Red, you will lose the changes you've made to the current one.

# AR-1

## DEEPER INTO THE CONTROLS

### TIPS AND TRICKS

---

#### ALL DIRT AND NO SQUEEZE

While the AR-1 is an incredibly vibey compressor, some of its most interesting and useful sounds involve no compression whatsoever. Turn the Threshold fully CCW to 'Off', then drive the Input to produce subtle or overt amounts of a very warm, very fuzzy flavor of tube saturation and distortion. Bass, kicks, vocals, synths... AR-1 rarely offends and generally rewards the user who pushes it hard!

#### GAIN-STAGING THE AR-1

Sounds going through the AR-1 hit several stages of distortion, eq, and compression. Whether analog or digital, all multi-stage processors like AR-1 perform very differently depending on the level of the signal as it moves through the various stages. The art of setting up these kinds of processors so that they perform the way you want is called "gain-staging". With analog devices in general, and with tube devices in particular, more level = more distortion.

Keeping this in mind, here are three ways you can set up the AR-1 which leverages the interplay between Input levels and Threshold settings. Each approach allows you to produce identical amounts of compression, but with dramatically different degrees of distortion.

Turn IO Link Switch to OFF, set Attack and Release to 12 o'clock

Set the Threshold to establish the overall distortion character you're going for:

- **Clean & Pristine:** set the Threshold to -50dBu (the lowest it goes)
- **Gently Cooked:** set the Threshold to -35dBu (this is close to the hardware)
- **Warm & Fuzzy:** set the Threshold to -20dBu (this one is a lot of fun)

Run your signal into the AR-1

Adjust the Input control until the Gain Reduction Meter peaks between 8-13dB GR

Adjust the Output control for desired output level

Turn IO Link Switch to ON

Now that the AR-1 is gain-staged for your tastes, you have 3 possible ways to shape the relationship between compression and distortion:

Raise or lower the Threshold (CW) to vary compression but keep distortion levels consistent

Increase Input to increase compression and distortions simultaneously

Decrease Input to decrease compression and distortions simultaneously

# AR-1

## DEEPER INTO THE CONTROLS

**WHAT'S NEXT?**

### **GOT QUESTIONS?**

We've got answers! Head to [www.thehouseofkush.com/support](http://www.thehouseofkush.com/support) for all your plugin support needs.

### **INTO ANALOG?**

Ready to pull the trigger on some of Kush's Analog options? Visit [thehouseofkush.com/analog](http://thehouseofkush.com/analog) to read up on all the latest Kush has to offer. Watch videos, hear demos, and drool over the fantastic warmth and detail only Analog can bring to your sound.

### **WANT TO WIN A FREE PLUGIN?**

Learn to mix while Gregory Scott (UBK) of Kush Audio and ITB Mixing pro Nathan Daniel answer listener questions, crack themselves up, and offer weekly chances to win FREE Kush plugins! Search "UBK Happy Funtime Hour" on iTunes and Stitcher, or visit...

**UBKHAPPYFUNTIMEHOUR.COM**

**KUSH**  
FEED YOUR MUSE