

Guitar Resonator GR-Junior II



User Manual

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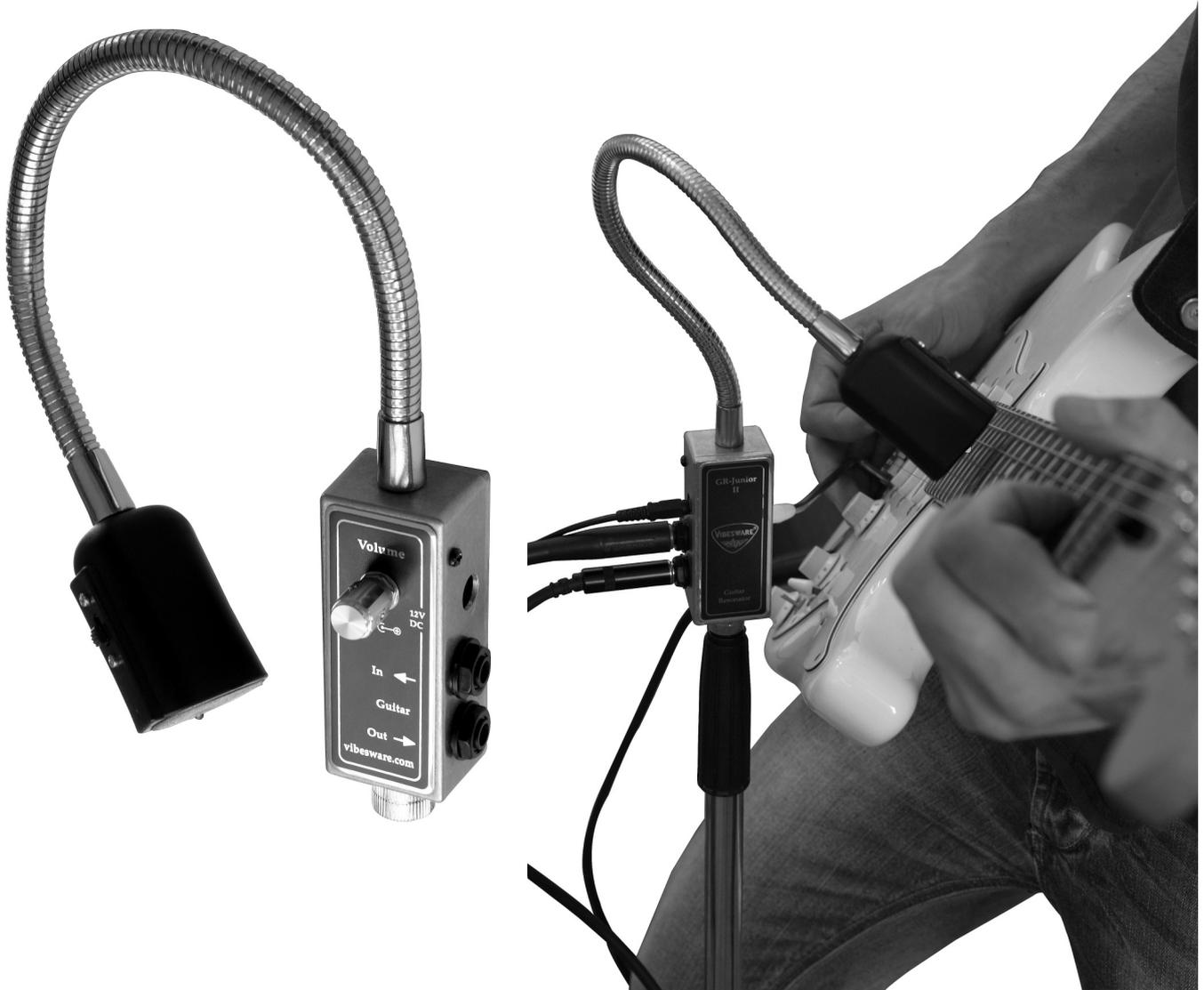
Rev. 1.0

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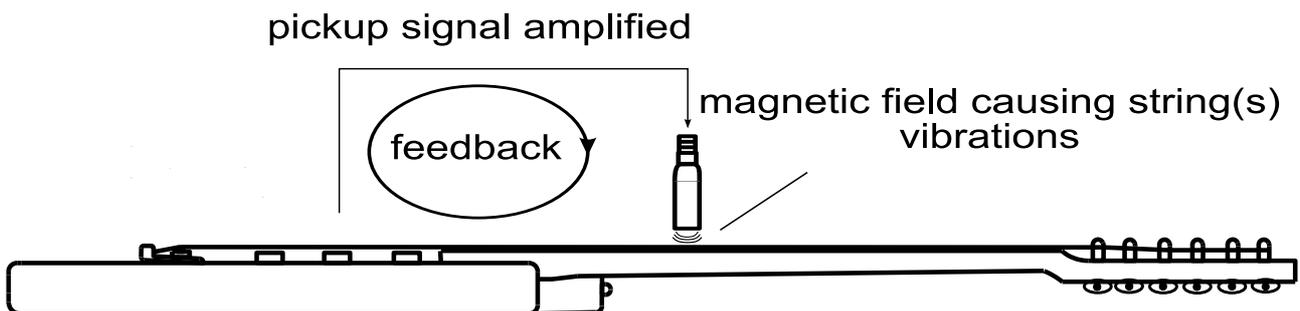
1 Introduction

Thanks for choosing Vibesware ! Enjoy gorgeous sustaining feedback and have lots of enjoyment and experimentation with your GR-Junior, the new compact Guitar Resonator.



How does it work ?

Vibesware Guitar Resonators generate an alternating magnetic field from the guitar pickup signal. The string vibration is amplified when positioning the Resonator head near the strings. This vibration feeds back through the pickup so that a closed loop occurs:



With the GR you can create amazing feedback sounds, that sound very natural because they come directly from the strings. Thus the sound is not as 'false' as electronically generated feedback gadgets. The GR sounds totally natural, just like a turned up amplifier, where the string feedback comes from the sound waves.

The usage of Guitar Resonators has many advantages:

- Feedback is possible *at any sound volume*, even if playing with headphones.
- The GR works fine with crunch or even clean sounds. It would take extreme amplifier gain to get the same feedback tones with sound wave feedback.
- The transition from normal tones into feedback can be controlled precisely and is always reproducible. You don't need any time wasting experiments with amplifier gain or loudspeaker distance.
- With the strong magnetic field, you can generate extreme feedback harmonics that cannot be generated with normal amplifier/speaker feedback.

1.1 Differences to the EBow and other Sustainers

The most popular magnetic string vibration device is the EBow developed in 1976. This ingenious gadget is a hand-held device built for making single string vibrations. Although lots of interesting tone effects can be produced with it, the typical EBow™ playing is a bow like movement rather than a striking of the strings. You don't use a plectrum for playing these desired effects. With this technique cello like sounds can be produced. The Ebow is used all over the world for special effects in dedicated lead phrases.

Next, Sustainers entered the guitar world, which can be found on special guitars or they can be built into existing guitars. This is done by replacing the original neck pickup by a so called Sustainer pickup. Unlike the EBow you can play with both hands and you can play feedback with more than one string at the same time. Another difference to the EBow is that the sound cannot be controlled by the playing technique, because its position is fixed on the guitar. Both, the EBow and Sustainers run with batteries.

By contrast Guitar Resonators provide the following features:

- You can use both hands for normal playing. Feedback is created by positioning the guitar neck to the Resonator. This is similar to the speaker positioning for regular guitar to amplifier feedback techniques. However, the onset of feedback and harmonics can be controlled much better by the Resonator positioning. This feature alone is one of the main differences to that of built in Sustainers. Plus, unlike the EBow™ you can get feedback

with more than one string !

- Electric guitars can be used without modification. You do not need a special guitar nor any additions to your beloved guitar. Guitar Resonators are just added to the equipment you are familiar with.
- All Guitar Resonators have an external power supply, whereby the magnetic field is much stronger than battery powered devices. This gives you the ability to get feedback with very high or low strings too.
- All Guitar Resonators have an external power supply, whereby the magnetic field is much stronger than battery powered devices. This gives you the ability to get great feedback with the high or low strings.
- Built in Sustainers are connected to the bridge pickup, whereas the Resonator is driven by the selected pickup(s). Feedback playing with different pickups offers many different feedback sounds. This feature is similar to real amplifier/speaker feedback.

In a nutshell, Guitar Resonators are all-purpose feedback machines. You can keep your own equipment and natural playing style when adding the GR to your set-up. It is easy to learn how to use and will give you a new dimension to your guitar playing without any modification of your guitar or guitar sound. You can use it as a reliable tool for placing precise feedback harmonics whenever you want them. But this is just the beginning of your GR journey. Exploring further, you will find new ways of playing guitar. And, as all classic effects show, it interacts seamlessly with every player, because the sound comes not only from the device but also from your playing technique.

2 Fields of application

2.1 Feedback playing everywhere / composing / recording

- GR is the ideal device for home recording; playing into the PC for example. Here you can directly record feedback at low volumes, even at night with headphones. You get rich, sustained sound just like a loud amplifier going into feedback and beautiful textured harmonics at any volume. Together with PC recording tools (e.g. Guitar Rig) professional recordings with feedback can be produced with a minimum effort and maximum playability.
- In recording studios you can get the desired feedback sounds directly in the control room. Precisely and always reproducible. No matter where your roarily loud amplifier is placed. There are no time wasting experiments required for getting the desired feedback.

2.2 On Stage

- Perfect for total control and always reproducible feedback on stage. Independent from monitor settings and amplifier gain. This makes fantastic results possible on large or small stages. Even if using head sets instead of stage monitors.
- There is no need to turn away from the audience to your amp speaker for getting feedback. Simply move the neck of your guitar towards the Resonator for instant feedback. You can also fix the Resonator together with a microphone on the same stand. Extensive feedback sounds are possible whilst facing your audience.
- If you plug your guitar directly into the PA, feedback from the monitor never sounds as warm and rich as natural feedback from the guitar speaker. With Guitar Resonators you will always get the same amazing sound, even in this configuration.

2.3 New ways of playing

With a little practice, you will explore many new ways of feedback playing:

- Lead notes passing into feedback harmonics instantly make your playing much more powerful and exciting. The sound is very fluid and expressive when feedback is made whilst bending strings. During sustained feedback the harmonics can be changed by moving the Resonator to another neck position. This total control of feedback is delightful and cannot be achieved with normal amplifier feedback techniques. Generally, it is a matter of luck when searching for the desired harmonics, often your feedback is out of control when using high distortion sounds or extensive sound volumes. This is probably one of the reasons, why exact feedback tones are rarely embedded in lead compositions. In most cases, there is no time in lead phrases to wait for the feedback.
- Feedback tones create a more atmospheric playing style. The GR can be a most effective therapy for taming high speed players and encouraging tasteful sustaining passages. Following the less is more principle, sustaining notes with vibrato and variations of harmonics yield important points of interest between speed phrases. These points of interest give the guitarist total freedom for expression by using feedback together with vibrato, bending and tremolo !
- Outstanding feedback can be generated from clean/crunch sounds ! Feedback from high gain settings is to be expected but feedback with crunch or clean sounds is out of this world ! Cleaner guitar sustain transitioning into feedback is more distinctive and interesting within the

overall band sound. We noticed that players start reducing distortion after using the GR for a while, they got outstanding sustained tones with less distortion which considerably improves punch and clarity. However, more distortion makes finding great feedback sounds even easier. Someone told us he never had any problems in creating feedback. He simply cascades two distortion pedals and thereby gets feedback whenever he wants. Ok, that's fine but it's a simple and crude solution. We all love tube sounds going smoothly into distortion and sustain without unnecessary colouring from distortion boxes. A feedback tone is much more than an oscillation which sustains the tone, it colours the sound depending on the individual playing technique !

- If you like playing with pitch shifting devices like the Whammy pedal you really should work on several voice feedback sounds giving amazing results, unlike any regular guitar or synthesizer sound. And of course it is interesting to use the Resonator together with other effects. Note that the Resonator should be connected directly to your guitar. Other effects should always be plugged behind the Resonator Box. Delay effects in general sound good with feedback. But WahWah pedals and bottlenecks are well suited as additional effects too, since hands and feet are ready for control while using the Resonator. There are no limits for new ideas and settings at all.
- In general it is interesting to use the GR together with other effects (Note that the Resonator should be connected directly to your guitar, other effects should always be plugged behind the Resonator Box). Delay effects in general sound good with feedback. But also WahWah, modulation pedals and bottlenecks are well suited as additional effects too. Hand and feet are free for controlling your performance while using the Resonator. There simply are no limits your imagination, ideas or settings, none at all.
- Last but not least, amazing sounds can be created with piezo / transducer equipped guitars that have steel strings ! This is ideal for creating very clean acoustic type feedback sounds. Note that there is no direct feedback with piezo pickups which allows a free positioning of the resonator head along the strings.

3 Start-Up of the GR-Junior

After connecting to the power supply, directly plug your guitar to the input. Guitar input and output are directly connected in order to output the pure guitar signal. This output can be connected as usual with effects, PC or the guitar amplifier.

Control Elements:

- a) The volume sets the power of the magnetic field. High power means you don't need to go too close to the strings. But more power also

increases the sensitivity towards undesired direct feedback from the Resonator to the pickup (whistling).

b) Slider switch for changing harmonic modes.

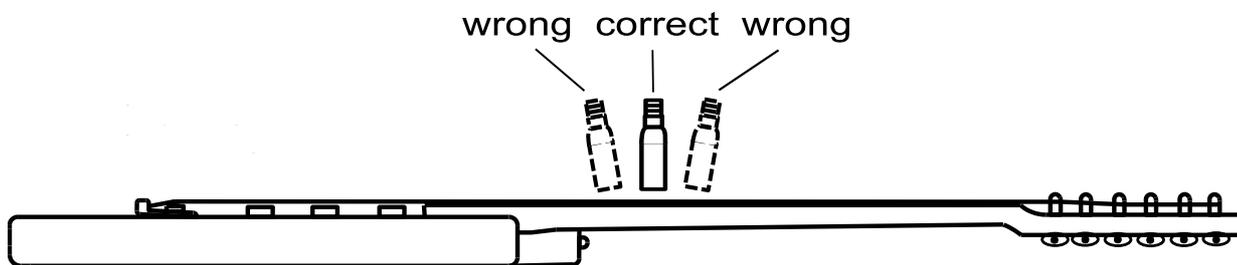
4 Playing techniques

4.1 Basics

It works easily and effectively. Just hold the Guitar Resonator near the strings in the neck area. The closer the resonator is, the stronger the string(s) are agitated by the magnetic field. Feedback start and end points can be easily controlled with the distance. The best way is to put the Resonator head close, without touching the strings and to hold the Resonators Head at right angles to the guitar neck.

The blue lights intensity grows depending on the signal that drives the Resonator. The brightness decreases when the string vibration dies away. Moving the Resonator closer to the strings amplifies the vibration whereby the brightness indicates increases in gain. To drive the Resonator sufficiently, the gain at your guitar should be turned up to maximum. If you like playing with reduced gain this must be compensated with the gain of the Resonator Box. However, this will increase the unwanted pickup feedback sensitivity at full guitar volume, so a reasonable compromise has to be found. The Resonator volume can also be easily adapted while playing.

positioning of the Resonator Head



4.2 Changing harmonics by phase shifting

Phase shifting allows to switch between feedback harmonics (slider switch at the Resonator Head).

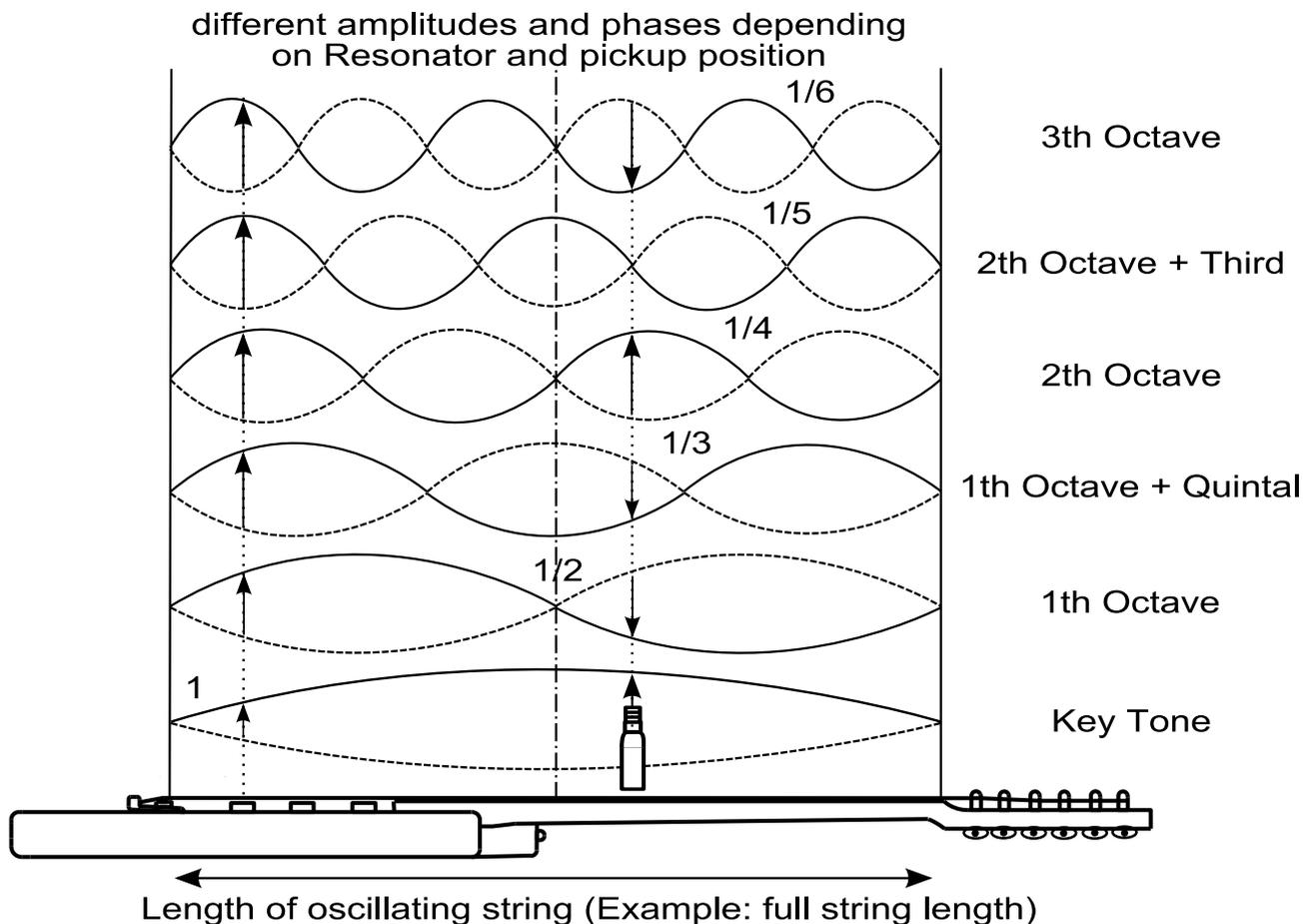
4.3 Harmonics control by positioning the Resonator

The nice thing is that you get different harmonics depending on the Resonator Head position along the neck. This is done by moving the guitar neck with your body or with a direct arm movement. Players with low hanging guitars prefer moving up the guitar neck to the Resonator (typical Hendrix like position). Players with higher hanging guitars just need to move their body to the Resonator. However, the important thing is to position the guitar near enough without

touching the strings. By the way: As we all know, new strings are essential for rich string harmonics. This holds true particularly with feedback harmonics !

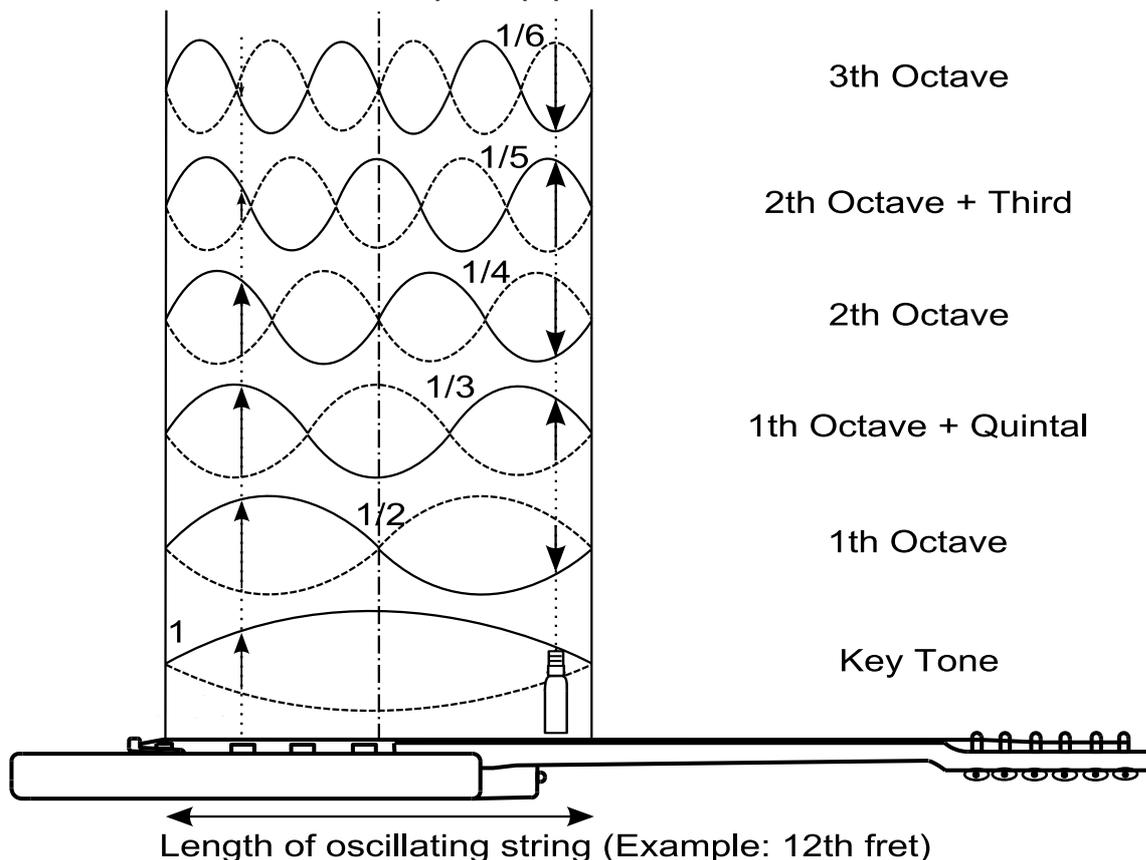
4.4 Some string vibration basics

Perhaps you would like to understand more about the dependencies of driven feedback harmonics, Resonator position, phase and pickup selection ? In that case, the theory of stationary waves might help.



The fundamental tone has one antinode with a maximum amplitude at the half length. Then the first octave occurs which has two antinodes, showing maximums at $1/4$ and $3/4$. At $1/3$ we can see three antinodes which can be found in the tone as the quintal from the first octave. The second octave shows at $1/4$ length and the third from the second octave at $1/5$. The third octave has six antinodes. The overall tone is given by the superposition of key tone and all these harmonics. The percentages of the key tone and the harmonics depend on the guitar characteristics (body, bridge etc.), the string(s), the notes played and also the way you strike the strings. The quality of the strings (old or new) also affects the harmonics mix. These pictures also show the phase shifting along the string length (the dashed lines mean the backward string movement). The first octave for example can move in the opposite direction to the key tone along the neck. This explains why the feedback turns from the key note to the first octave when shifting the Resonators phase.

different amplitudes and phases depending on Resonator and pickup position



The Resonators oscillating magnetic field offers a spectrum of frequencies from which only string vibrations in phase are amplified. Finally, the frequency with the largest amplitude is the winner. This frequency falls into feedback. At the same time, reverse phase vibrations are damped. The amplitudes of the harmonics change from zero to maximum along the guitar neck. However, phase and amplitude changes along the guitar neck are the reason for the different feedback harmonics on different Resonator positions.

If you like to go into more detail, you can see that the pickup selection has an influence on the feedback harmonics too. Since the Resonator input comes from the selected pickup, amplitude and phase of the magnetic oscillation depend on the pickup position. The neck pickup for example shows much more key tone amplitude than the bridge pickup where the amplitude of the first octave is much smaller. As a consequence, the pickup selection also controls the feedback harmonics. You can check this out simply by pickup switching while playing feedback.

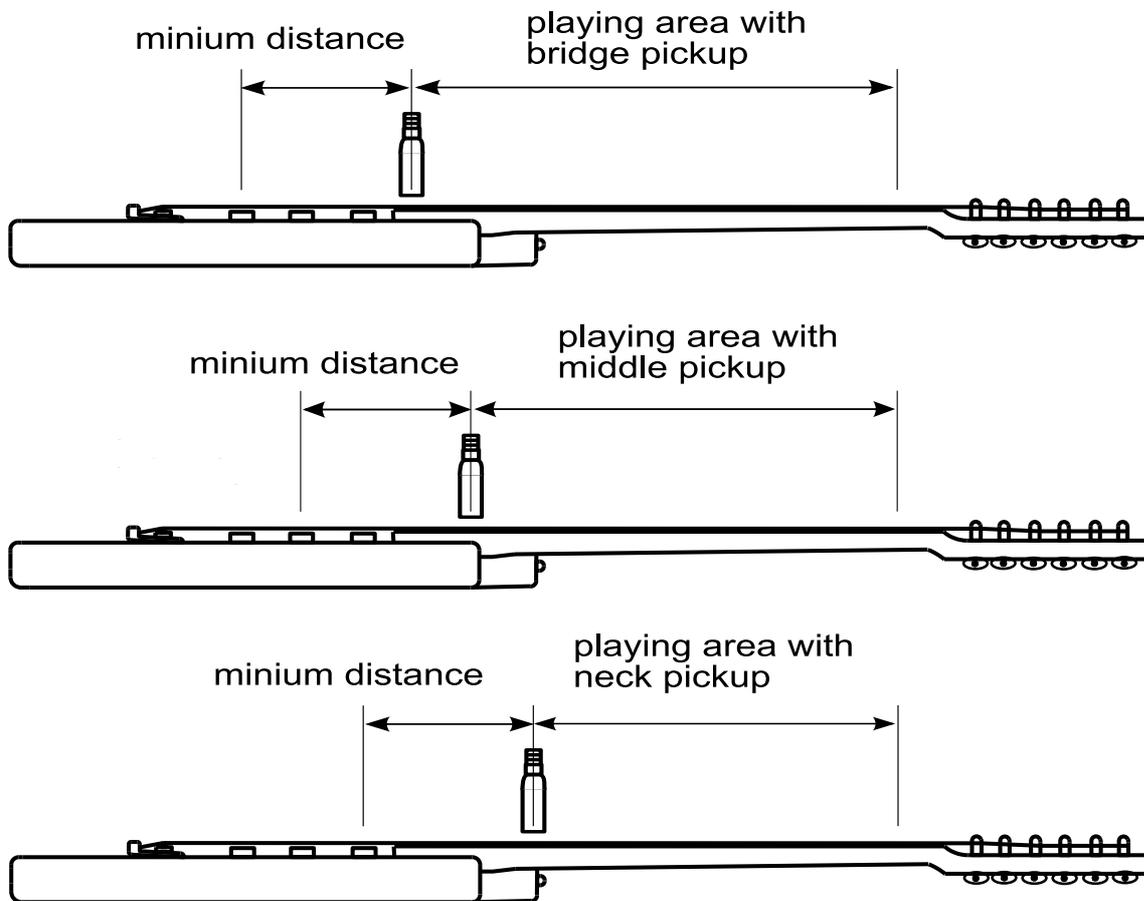
Last but not least the frequency characteristics of the pickups itself influence the feedback harmonics. All this together makes clear why the Guitar Resonator sounds individual depending on both, your instrument and your playing style.

4.5 Feedback of multiple strings

Up to three strings can be agitated at the same time. This can be used for feedback with power chords. It is normal here, that the feedback of one string dominates. This is similar to amplifier feedback but with the difference that the dominating string can be forced by the Resonators head position. This can be done by moving the Resonator from the lower to the upper strings or the other way round. By this the dominating string can be changed while playing.

4.6 Limits of playing, pickup selection and power setting

The Resonator has been designed for positioning in the neck area. Near the activated pick-up undesired direct feedback from the Resonator to the selected pickup may occur. The minimum distance depends on the Resonator volume (70% is a good starting point). Begin playing with the bridge pickup. Normally, the overall neck area can be used with it. The sensitivity not only depends on the Resonator power but also on the pickup. In general humbuckers show less sensitivity than single coils. With some practice you play closer by the strings which enables you to reduce the Resonator power. Then, you can also play with the neck/middle pickup. You should aim to work it out, because the feedbacks you can achieve are truly rich and amazing !



5 Frequently asked questions and troubleshooting

| Problem | Solution |
|--|--|
| <p>The light intensity at the Resonator Head is poor and the string agitation is weak</p> | <p>The guitar gain or Resonator gain is too low. Another reason might be that pickup tone control cuts the high frequencies which downgrades the string agitation particularly on higher strings.</p> |
| <p>Pickup wheezing / impure tone caused by magnetic interference to the pickup(s)</p> | <p>The distance between the selected pickup and the Resonator Head is too small or the gain of the Resonator Box is too high. Single coils are more sensitive than humbuckers. The sensitivity also depends a little bit on the phase setting. In most cases it is possible to find a gain setting where the overall neck area can be played.</p> <p>Another possible reason might be that there is another effect placed between the guitar and the Resonator box. In general, effect boxes should be connected after the Guitar Resonator.</p> |
| <p>I am used to play with reduced guitar pickup gain and would like to use the Resonator also with this setting.</p> | <p>As a simple solution, you could use a volume pedal after the Resonator. If you don't want this, there is another workaround: Try to split the guitar signal with a splitter box. One signal goes to the amplifier and the other goes to a compressor/Sustainer pedal and then to the Resonator. By this the Resonator gets a stronger signal. If the sensitivity is turned up guitar volume becomes too high, the compressor pedal can be bypassed.</p> |