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## SC-1 Mic Preamp NOW ON SALE!!!!

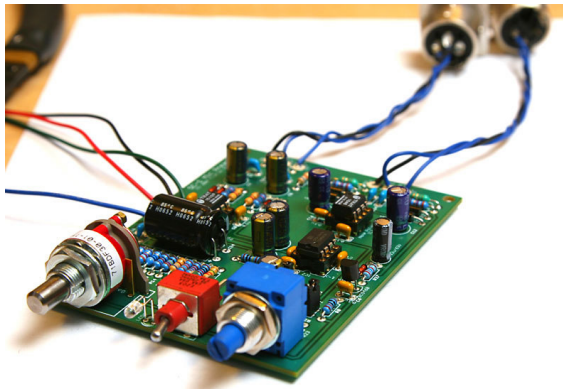
After many months of development, testing, troubleshooting, frustration, problems, and accomplishments... the [SC-1 mic preamp kit](#), PSU-1848 power supply kit and power transformer kits are now available for sale!

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Photo of a finished [SC-1 mic preamp kit](#)! (Note: XLR jacks and wires shown on picture not included in the kit.)

#### Features:

- Low-Noise, transformerless, High-Quality Mic Preamp
- All solid-state design, using chipsets from THAT Corp and Burr-Brown
- Soft-start, slow ramp-on +48V phantom power
- Crystal clear Red LED indicator for phantom power
- Electronically balanced input and output stages
- 12-position Grayhill gain selector switch
- Gain range from +6 to +72dB, in 6dB increments
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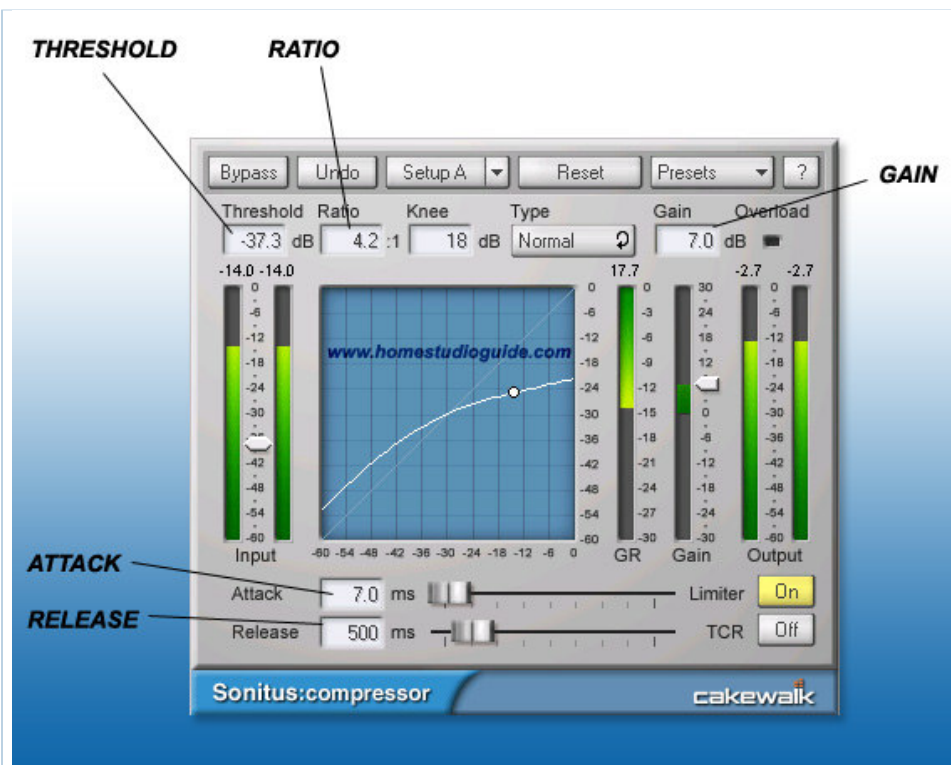
[Download PDF file of Assembly Guide/Kit Instructions](#)

Related products like the PSU-1848 Power Supply Kit, Power Transformer Kit, Power Control Kit are also available for sale. [Click here.](#)

 **Saturday, December 23, 2006**

#### [How to use compressors](#)

Saturday, December 23, 2006 10:37:17 PM (Central Standard Time, UTC-06:00) ( [Compressor](#) | [Plugins](#) | [Recording](#) | [Tutorial](#) )



Compressors are one of the commonly used plugins when mixing/mastering. It's not hard to understand how they work... if you know what each button/knob does and how it affects the sound.

When compressors are used properly, the effect shouldn't be noticeable. ONLY when you compare the uncompressed and compressed signal should you notice the difference in the dynamics. Compressors are often used during tracking or mixdown. And during the mastering process, the whole stereo mix may be compressed and/or limited.

The most common controls in a compressor are the THRESHOLD, RATIO, ATTACK, RELEASE and MAKEUP-GAIN. Everything else is fluff... like input/output VU meters, or soft-knee/hard-knee, limiting on/off.

Think of a compressor as an automatic variable volume control. The "volume" control's behavior is set by the attack, release, ratio knobs. This automatic volume control reduces the dynamics of any audio material that goes above the threshold. And this is where the paradox is. If compressors are used to reduce the volume/dynamics of music, how can it make the music sound loud? Well, the answer is in the MAKEUP-GAIN, where the average level of the music can be raised higher without clipping (chances for clipping are reduced because we just reduced the dynamics!).

So let's discuss the important parameters/control in a compressor...

1. **THRESHOLD** - This is measured in dB. It's a negative value because we're setting levels below the 0dB mark. Threshold (in dB) is that level at which the compressor should start reducing the output level. So if you set the threshold to -37dB (like in the picture above), signals below -37dB in levels remain unaffected. Signals above -37dB (or in other words, louder than -37dB) will be reduced by the compressor. By how much should it be reduced? That's a function of the RATIO setting.

2. **RATIO** - So if a signal exceeds the THRESHOLD value, the compressor should start reducing it. Reduction is measured in ratio instead of a fixed numeric value. So let's say you set a RATIO of 2, any signal increase above -37dB in our example above will be reduced by half. So 6dB above -37dB will be reduced to 3dB. A high ratio will reduce the the levels by a higher amount.

3. **ATTACK** - So we now understand that input levels above the THRESHOLD value will be reduced. This means, the compressor is always watching the input and detecting it's levels. The question now is, if a signal exceeds the THRESHOLD level, how fast or slow should we take action (of reducing it)? This is a function of the ATTACK setting, measured in milliseconds. A fast attack (i.e. low millisecond) will mean the compressor will take action faster than a slow attack speed. Therefore, a slow attack (higher millisecond) setting means the signal that peak may be allowed to pass through. What does this mean? It means the dynamics of the signal may be allowed to pass through normally without being compressed... think of a snare hit on a drum. We don't want to kill the initial

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dynamics of the snare hit.

4. **RELEASE** - Now, if a signal exceeds the THRESHOLD level, at some point in time it will go down below the threshold level again. If a signal goes below the THRESHOLD level, at what point should we stop compressing? Should we do it as soon as it goes below the THRESHOLD, or a few milliseconds afterwards? This is a function of the RELEASE setting, measured in milliseconds. A longer setting, i.e. a slow release means the compressor is still holding a "grip" on the signal, i.e. still reducing it. A short or fast setting means the compressor will let go of the signal. Long settings (i.e. a slow setting) produces a gradual less noticeable effect in the sound. Short release times are good for percussion instruments, and long settings are good for vocals.

5. **GAIN** - This is also known as MAKE-UP GAIN. If you set a low THRESHOLD value, and a high RATIO amount, the overall signal will be reduced. So we would want to amplify that signal and this is the function of the GAIN setting. It boosts the compressed signal to a sufficient level that we want.

Great, now that we know the different settings. But what can we use compressors for?

Compressors can be used to "even" out the volume by reducing the peaks in the signal (thanks to the RATIO control). For example, your singer has bad mic technique and their volume varies a lot. We can use compressors to even out the levels so the vocal levels don't vary a lot.

Compressors can be used to avoid overloading/peaking during recording. (Of course, when used during recording, the change is permanent.)

By setting the appropriate ATTACK and RELEASE settings, we can add punch to our drums, adding impact to our beats.

And compressors are also used in mastering (sometimes too much) which adds punch and volume to the track. But if a compressor is overused, you could also end up with a crunched sound... losing all your dynamics which makes for a "boring" listen. So don't overdo it. Sometimes, slight compression settings is all that is needed.

### Sample Procedure for Compressing

1. First, set the bypass switch on the compressor. Listen to your levels... note how loud they are. Take a look at your VU meters and note the peak signal level.
2. Then take off the bypass (i.e. let the compressor affect the signal).
3. Set the ratio knobs... 2:1 or 4:1, depending on how much you want to reduce the levels
4. Set the attack and release time. Let's use a fast attack time of 5ms and slow release time of 100 or 150ms.
5. Now, set the threshold level until the compressor is showing a gain reduction of 4, 6 or 8dB.
6. Now, use the make-up gain and set it so that we're showing the same peak signal as before compression (see step #1).

At this point, the sound should be punchier. It's like magic... they both have the same peak signal levels but the compressed signal has more weight and feels more solid.

If the sound is too compressed, and all the dynamics of the signal seemed lost, raise the threshold level (which means you have to lower the makeup gain), or increase the attack time (i.e. make it slower to react).

The Bypass button is your best friend. Sometimes, subtle compression is all you need so make sure to hit the bypass on/off button often to hear the difference between no-compression and compression.

If you're using compression for the final mix on a stereo track, you may want to combine the compressed and non compressed signal. This will make the music "thick" while still retaining the dynamics of the original music.

### Typical Compression Settings

These are just typical settings, and don't make this the "rule." The exact setting will depend on the material you're compressing and the effect you want to achieve.

Delicate Vocals - We want to set the RATIO to a high value and high TRESHOLD. By using these settings, the softer vocal sections will remain uncompressed and only loud, ear shattering vocals will be compressed.

Threshold - set the threshold (i.e. lower it) so that the loudest vocal section is reduced by 6dB.

Ratio - Set to 6:1 reduction

Make sure threshold setting is not too extreme. We only want the loud vocal sections to be compressed by 6dB and

quiet vocals remain uncompressed.

Pop Vocals/Commercials (yes, those annoying TV and radio commercials) - Okay, we want obvious compression here. So we want compression always going on for almost the entire material, and a very big reduction during loud material.

Threshold - set the threshold so the the softest vocal section is reduced a little bit. (-1dB or -2dB)

Ratio - Set to 2:1 reduction

Attack - set to fast setting

Release - set to a little bit slow

Make-up gain - increase gain to increase volume again.

At these settings, we're raising the average level of the whole material... i.e. making everything sound loud!

Drums - or any percussive instrument. We want a punchy, thick sound in the mix.

Threshold - set threshold so all drum materials are compressed by -3dB.

Ratio - Set to 4:1

If you have a hard/soft knee switch, switch to "soft knee"

Attack - set to a fast setting

Release - set to a mid setting

By lowering the threshold setting, you can make the drums more compressed. But be careful not to overcompress it too much or you'll lose the dynamics and punch.

Bass guitar/bassy synths - we want a fairly constant level for the bass material so we have a "thick" sound in the mix. We don't want bass volume going loud and soft, we want it consistent.

Threshold - set so that only loud bass material (i.e. the peaks) are compressed.

Ratio - Set to 4:1

Attack - set to slow/mid

Release - set to slow/mid

Electric lead/rythm guitar - we want compression on these material. We want the guitars to be punchy and level out the volume.

Threshold - set to a low setting, to achieve constant compression

Ratio - Set to 6:1

Attack/Release - play with it

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