

Series '800'

MAXI-Q, KEPEX II and GAIN BRAIN II

Extended Processing Concepts

by VALLEY PEOPLE, INC.

Standing alone, each Series '800' component represents a level of processing power and versatility not available from other sources. When the units are combined in various fashions by the creative engineer/producer, their capabilities are multiplied dramatically, allowing a nearly endless variety of valuable parametric control.

The purpose of this literature is to act as a primer ... to encourage the user to explore the myriad obtainable processes inherent in the series. We suggest that the best way to do this is to first study the literature for each module ... to gather an understanding of what each device is doing, and how it does it. Then, the user can begin to develop 'patches' cleverly designed to yield specific parameter manipulations ... effects considerably beyond the ordinary.

Perhaps the best description of this sort of usage is educated experimenting...the user should experiment believing that almost any effect is possible, and that it is nearly impossible to damage the equipment by patching inputs and outputs. The following general guidelines are offered:

1. All Series '800' modules have electronically balanced inputs. Inputs may be paralleled without loading or impedance problems. Phase reversals may be obtained by reversing the input connections.
2. All Series '800' modules have unbalanced low impedance outputs. Outputs should not be paralleled. If it is desired to combine the outputs of multiple units, a suitable resistive combining circuit should be employed ... i.e., a 2k resistor from each output to the termination point. Of course, console mixing inputs may be used to combine multiple outputs.

The subsequent text will illustrate a few of the many interconnections possible with the equipment, and should serve to convey some of the general concepts involved. It is hoped that these examples will stimulate the user's desire to try other configurations.

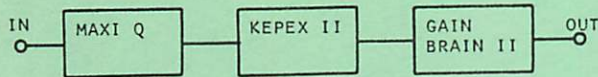


FIGURE 1

TYPICAL CONFIGURATION FOR EQ - EXPAND/GATE - COMPRESS/LIMIT

This configuration is basic, and is the preferred order of connection for most conventional processing. Placing the MAXI Q equalizer first tends to pre-condition the signal for optimal selectivity in the KEPEX II expander/gate which follows. Similarly, the selectivity of the KEPEX II is generally better if it is not preceded by limiting or compression. Thus, the GAIN BRAIN II limiter/compressor is placed last in the chain. This placement assures the best leveling effect at the final output.

The individual units may be adjusted to perform any of their wide range of functions. Perhaps the best overall use of this configuration is to adjust the KEPEX II and GAIN BRAIN II for essentially complementary action. That is to say that as the GAIN BRAIN II recovers (increasing its gain to noise), the KEPEX releases, reducing its gain to noise passages. Used accordingly, the combination will yield an excellent control of signal excursions while actually reducing the ambient noise rather than increasing it as in a conventional limiter-only situation. The complementary action should also greatly reduce the audible 'pumping' and 'breathing' effects associated with limiting.

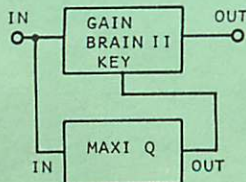


FIGURE 2A
FREQUENCY SELECTIVE
LIMITING, DE-ESSING

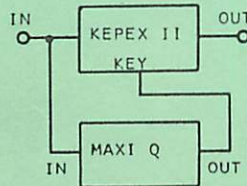


FIGURE 2B
FREQUENCY SELECTIVE
EXPANDING/NOISE GATING

By using the configuration in Fig. 2A, the signal actually passing through the GAIN BRAIN II is unequalized, yet the signal which causes gain reduction (key input) is equalized by the MAXI Q. By tuning the MAXI Q to the offending frequencies ('esses', resonances, etc.) gain reduction will occur when these frequencies are present, without the need to actually equalize the signal passed. It should be noted that the exclusive 'TUNE MODE' on the MAXI Q is a boon to aurally setting the unit to pin-point the undesirable frequencies. It should also be noted that both 'ess' signals and resonances tend to contain significant sine wave components, while high frequency vocal sounds tend to be complex and transient. The unique Linear Integration Detection method used in GAIN BRAIN II is inherently weighted to be more responsive to sine waves than to complex waves. Thus, a very selective attenuation of 'ess' and resonant signals occurs, with respect to those desired music components which might fall at the same frequencies ... MAXI Q plus GAIN BRAIN II forms a superior de-esser.

In Fig. 2B, the MAXI Q is inserted in the external Key path of the KEPEX II. The signal actually passing to the KEPEX II output is unequalized, while the signal which causes Expansion or Gating is equalized. By tuning the MAXI Q to peak at the frequencies desired, a more effective 'turn-on' is accomplished. Further, if the MAXI Q is tuned to attenuate the undesired frequencies (leakage, etc.) these frequencies can be made less susceptible to false 'turn-on', and thus rejected more selectively.

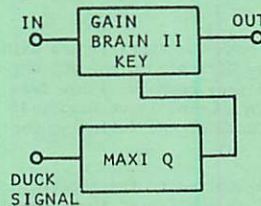


FIGURE 3A
FREQUENCY SELECTIVE
DUCKING

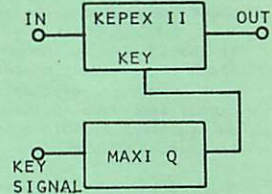


FIGURE 3B
FREQUENCY SELECTIVE
KEYING

The input signal passing through the GAIN BRAIN II (Fig. 3A) is attenuated whenever a second signal is present at its Key (side chain) input. Ducking is an abrupt action, while Inverse Envelope Following is a gentler action adjustable with the GAIN BRAIN II Ratio control. By placing the MAXI Q in the Key path this gain reducing action may be made frequency selective with respect to the Ducking signal for enhanced selectivity. An example would be the Ducking of a music program in response to a narrator's voice.

Fig. 3B shows the same configuration as above, except the KEPEX II is used in place of the GAIN BRAIN II. Now, a second 'Keying' signal will cause the main signal gain to increase, either abruptly or smoothly, as determined by the KEPEX II Ratio control. As above, the inclusion of the MAXI Q in the KEPEX II Key path allows the circuit to become frequency dependent, with respect to the Keying signal, for enhanced selectivity. An example of this configuration would be a drum track being used to Key or modulate the gain of say, a piano track for effect.

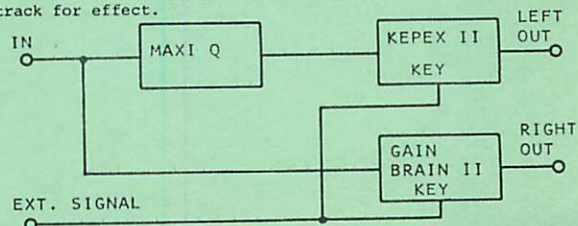


FIGURE 4
TYPICAL COMPLEX FUNCTION ... KEYED PAN/EQ EFFECT

The configuration shown in Fig. 4 is but one of many, many special effect connections which are possible using the Series '800' components.

Note that in Fig. 4, the left output is an equalized version of the input signal, which is passed through the KEPEX II. The right output is the unequalized input signal, passed through the GAIN BRAIN II. The Key inputs of both are connected together, and connected to a second input signal (Ext. Signal). When the External Signal is present, the KEPEX II will be Keyed 'on' ... thus the equalized input signal will pass through to the left speaker. At the same time, the GAIN BRAIN II will be Ducking or Keyed 'off' ... thus attenuating or eliminating the right speaker output. When the External Signal is removed, the situation will reverse itself ... the left output will fade off while the unequalized right output will fade on. Thus, the presence or absence of an External Signal will both pan and equalize the actual signal input. A variety of effects can be accomplished by adjusting the various controls on each of the three units.

In a derivation of Fig. 4, the External Signal input can be dispensed with, and both Key inputs tied directly to the actual input signal terminal. Now, the same general action will be accomplished, except that the Pan/EQ effect will become a function of the level of the input signal ... self induced.

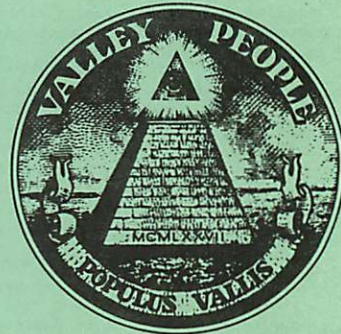
Of course, the two outputs could be mixed together into a single channel, thus creating a level dependent, or External Signal dependent EQ function.

As stated before, experimentation is the maker of creative effects; sources other than music should be considered. For instance, effective keying can be performed with metronomes, function generators, fingers 'drummed' on a table or microphone ... anything that works.

It should also be remembered that both the KEPEX II and GAIN BRAIN II have rear connector access directly to the VCA control inputs, as well as control voltage outputs. A low frequency sine wave applied to the VCA control input results in an excellent tremolo generator. Consider the following for an unusual effect.

A low frequency sine wave (5Hz) is applied to the signal input of the KEPEX II. The KEPEX II is configured to be Keyed 'on' by a handclap track. The KEPEX II output is connected to the VCA control input of the GAIN BRAIN II, which is fed from a guitar track. Here is what happens: Every time the hands clap, the guitar tremolos, at a 5Hz rate. The depth of tremolo, as well as the attack and release times of the tremolo effect are adjustable via the KEPEX II controls. So far, only the VCA in the GAIN BRAIN II is being used. It is still available to limit or compress the guitar signal, or even to duck the guitar from still another signal source.

The effects obtainable depend totally upon the imagination and boldness of the user ... we could not begin to name them all ... it's up to you!



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