Tremolo & Volume

VCarrara

Definition

The Tremolo effect applies a low frequency modulation on the audio amplitude, thus making the sound oscillate between high and low levels (volume). Both the frequency and the amplitude of the modulation signal can be changed to increase or decrease the effect sensitivity.

Tremolo

As shown in Table 1, the Tremolo acts just on the dry signal without dynamics. Therefore it is easy to implement on digital effects. In fact, the model of the tremolo is given by

$$y(n) = f(t)\,x(n)\,,$$

where x and y are the input and output signals, respectively, and $f(t)$ is the low frequency function modulator.

Table 1 – Effect composition and applied modulation

Effect	Dry		Wet		
	Output	Amplitude modulation	Number of delayed signals	Pitch modulation	Amplitude modulation
Chorus	✓		≥1	✓	✓
Vibrato	✗		1	✓	✗
Delay	✓	✗	≥1	✗	✗
Reverber	✓	✗	>>1	✗	✗
Flanger	✓	✗	1	✗	✗
Tremolo	✓	✓	0	✗	✗

Any Low Frequency Function (LFF) can be used to modulate the input signal, as shown in LFFG document. If the function is a user controlled potentiometer, for instance, them the tremolo output is a simple volume pedal. A Sustain pedal can also be done by choosing the LFF as the inverse of the low pass filtered input level. More details on the LFF can be found on its respective document.

Volume

Both Tremolo and Volume shares the same code. They are, therefore, mutually interchangeable. However, GSP accepts both as independent effects to allow using Tremolo together with a Volume pedal simultaneously. Normally Tremolo is configured to use any LFFG modulated function whereas Volume shall be configured to use exclusively (but not restricted to) LFO_EXTERNAL