

## MODULATION MODELER – QUICK REFERENCE FOR MODEL-SPECIFIC FUNCTIONS

MODEL	TWEAK	TWEEZ
<b>Opto Tremolo</b>	Shape	Volume Sensing
<b>Bias Tremolo</b>	Shape	Volume Sensing
<b>Phaser</b>	Feedback	No. of Phase Stages
<b>Dual Phaser</b>	Feedback	LFO Shape
<b>Panned Phaser</b>	Left-Center-Right	Pan Speed
<b>U-Vibe</b>	Feedback	Volume Sensing
<b>Rotary Drum</b>	Tone	Drive
<b>Rotary Drum &amp; Horn</b>	Horn Depth	Drive
<b>Analog Flanger</b>	Feedback	Manual (Delay Time)
<b>Jet Flanger</b>	Feedback	Manual (Delay Time)
<b>Analog Chorus</b>	Chorus/Vibrato Select	Tone
<b>Dimension</b>	Speed/Depth/Tweek/Tweez = Switch 1/2/3/4	
<b>Tri Chorus</b>	Depth (Circuit 2)	Depth (Circuit 3)
<b>Pitch Vibrato</b>	Rise Time	Volume Sensing
<b>Ring Modulator</b>	Shape	AM/FM Select
<b>Panner</b>	Shape	Volume Sensing

## MODULATION MODELER DETAILS

The following pages introduce the 16 models of the Modulation Modeler, created as the result of our in-depth studies of a dream collection of classic effect stomp boxes and rack units. Historical information on the gear that inspired each model helps you to the role played by each unit we studied in the history of great guitar tone. We've designed your Modulation Modeler to capture the sonic spirit of these classics, and bring it to you with the powerful new advantages of programmability and versatility. Also, be sure to check out the panel illustration at the bottom of each page for a sample setting for that model. Enjoy!

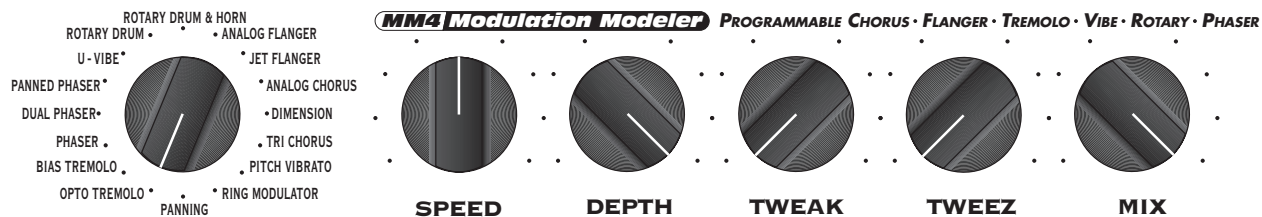
### Opto Tremolo – based on the tremolo circuitry of the 1965 Fender Deluxe Reverb amplifier.

The classic Fender “blackface era” ’65 Deluxe Reverb – as well as most boutique tremolo pedals – features a tremolo circuit that works by pulsing a light source directed at a photo resistor. Players everywhere love the smooth, round, and gentle pulse that optical tremolo is known for.

On our model, TWEAK adjusts the shape from classic gentle tremolo all the way to dramatic sci-fi throb. TWEEZ gives you a "peak follower," making the tremolo rate sensitive to input level, so that a louder input signal speeds up the tremolo, and a lower volume input slows it down.



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TWEAK adjusts shape.

TWEEZ adjusts volume sensitivity (peak follower).

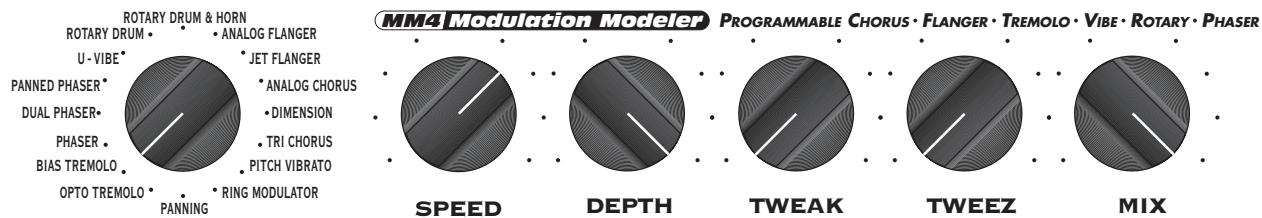
### Bias Tremolo – based on the tremolo circuitry of the 1960 Vox AC15 amplifier.

Vintage tremolo came in two flavors: Opto and Bias. Our Bias Model emulates a classic Vox tremolo circuit design.

Bias tremolo produces a deep, 3-dimensional, kinda phasey tremolo that’s sure to keep you warm and cozy all through the night. Experiment with TWEAK to change the waveform and you’ll find that your MM4 can take you places you’ve never heard before. TWEEZ gives you a "peak follower," making the tremolo rate sensitive to input level, so that a louder input signal speeds up the tremolo, and a lower volume input slows it down.



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TWEAK adjusts shape.

TWEEZ adjusts volume sensitivity (peak follower).

### Phaser – based on the MXR Phase 90.

Our Phaser model is based on the phaser that changed the world – the MXR Phase 90. The Phase 90 is relatively subtle compared to other phasers, and becomes part of the overall tone. Its lush, organic, and groovy swirl can be heard all over the first two Van Halen albums, as well as Jimmy Page’s work on *Physical Graffiti*.

The Phase 90 is a four stage phaser; its single knob controls only speed. Our model stays true to the original when all controls (except Speed) are like the setting below. But, being the flexibility freaks we are, we also let you explore destinations unknown. TWEAK controls Feedback; TWEEZ selects 4, 8, 12, or 16 Phase Stages (thus controlling the degree of out-of-phase-ness).



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**MM4 Modulation Modeler** PROGRAMMABLE CHORUS • FLANGER • TREMOLO • VIBE • ROTARY • PHASER

TWEAK adjusts feedback.

TWEEZ selects the number of phase stages.

### Dual Phaser – Mu-Tron Bi-Phase.

What could be better than one really cool phaser? Why, two of course! The Dual Phaser is our model of the innovative Mu-Tron Bi-Phase. This multi-stage phaser is known for its big jet sound and its sheer *physical* size.

The Bi-Phase featured controls for waveform, Speed, and Depth – and was the first phaser to hit the market with a variable Feedback control. Our Dual Phaser model gives you the lush, offset phasing that make the Bi-Phase a treasured classic.

The TWEAK knob recreates that innovative variable feedback control, and TWEEZ allows you to select the waveform shape – sine or square wave. So dial up some swirl and get down with your bad self.



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**MM4 Modulation Modeler** PROGRAMMABLE CHORUS • FLANGER • TREMOLO • VIBE • ROTARY • PHASER

TWEAK adjusts feedback.

TWEEZ adjusts LFO shape.

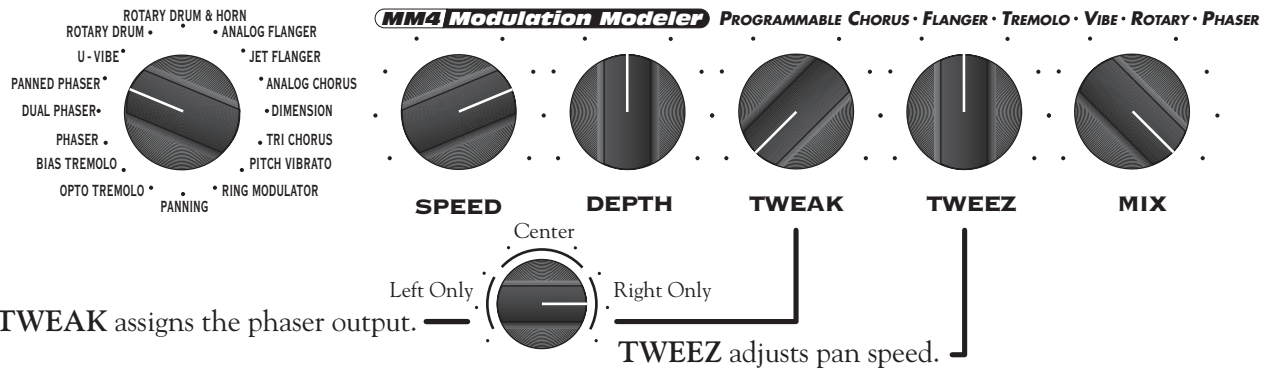
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**Panned Phaser – based on Ibanez Flying Pan.**  
 Modeled from the Ibanez Flying Pan, the Panned Phaser embodies the mantra of many '70s pedals designers: “If you like them separate, why not both together?” You can bet your bell-bottom jeans that the Flying Pan kept heads spinning around the dance floor when they heard this four-stage phase shifter with a panner built in. It’s all that and a bag of chips.

The Flying Pan featured controls for phase speed, pan speed, and a three position switch to assign the phaser to the left, right, or both channels. Being the make-it-a-whole-lot-like-the-original kind of crazies we are, the Panned Phaser features all of these same controls. Plug in and take 'em for a spin.

MM4 Modulation Modeler



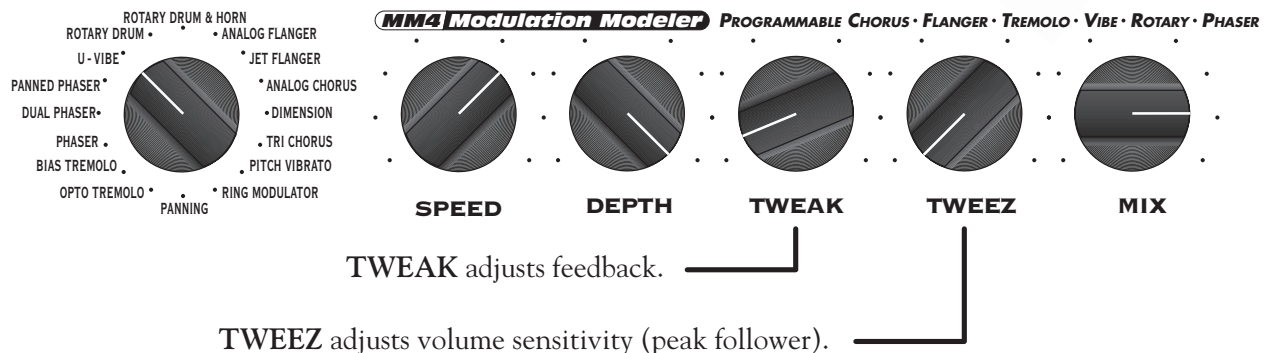
**U-Vibe – based on Uni-Vibe.**

The now-legendary Uni-Vibe was put on the map in 1969 by Jimi Hendrix. Essentially a four-stage phase shifter, the Uni-Vibe is best known for its watery texture and sultry tones. One listen to “Machine Gun” and you’ll know what we mean.

For an authentic Uni-Vibe type experience, use the optional Line 6 expression pedal to sweep speed. TWEAK and TWEEZ give you feature extras – feedback, plus a “peak follower” control to make speed sensitive to input level (so louder input signals speed up the effect, and lower volume inputs slow it down). To recreate the effect of the Uni-Vibe vibrato switch, turn the mix control to 100% wet. (That’s what the switch did on the original.)



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MM4 Modulation Modeler

### Rotary Drum – based on Fender Vibratone.

What goes around comes around with our model of the Fender Vibratone. The famous sound of the Vibratone can be heard on Stevie Ray Vaughan’s “Cold Shot,” and was created by a rotating drum surrounding a 10" speaker. The Styrofoam drum has two slots, and the cabinet has three (left, right and top). The drum rotates with a vertical motion, sending sound spinning in all directions. It’s a great sound, but to get it you had to have your main amp, a Vibratone, and another amplifier to drive the Vibratone. That’s quite a commitment of space and back strength! Our Rotary Drum model delivers all of the tone and none of the hassle – simply dial up the settings you need and your Stomp Box Modeler will spin you into a sonic frenzy.



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**MM4 Modulation Modeler** PROGRAMMABLE CHORUS • FLANGER • TREMOLO • VIBE • ROTARY • PHASER

ROTARY DRUM & HORN

ROTARY DRUM • ANALOG FLANGER

U-VIBE • JET FLANGER

PANNED PHASER • ANANOG CHORUS

DUAL PHASER • DIMENSION

PHASER • TRI CHORUS

BIAS TREMOLO • PITCH VIBRATO

OPTO TREMOLO • PANNING

RING MODULATOR

**SPEED      DEPTH      TWEAK      TWEEZ      MIX**

TWEAK adjusts tone. ————

TWEEZ adjusts drive. ————

### Rotary Drum & Horn – based on Leslie 145.

It’s legendary, it’s furniture, it’s way too heavy to move... and it inspired our Rotary Drum & Horn model – *it’s the Leslie model 145!* Originally the mainstay for B3 organ players, the Leslie 145 also brings guitar players a huge, three-dimensional swirl-fest of sound. The 145 features two sound sources: the lower part of the cabinet has a 12" speaker surrounded by a motorized rotary drum, and the upper enclosure houses a spinning horn.

Whether clean or overdriven, this is one of those signature sounds you could only get from the original – until now! Needless to say, your Stomp Box Modeler is designed to produce every nuance of grind and spin without the investment of space or Endust.



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ROTARY DRUM & HORN

ROTARY DRUM • ANALOG FLANGER

U-VIBE • JET FLANGER

PANNED PHASER • ANANOG CHORUS

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PHASER • TRI CHORUS

BIAS TREMOLO • PITCH VIBRATO

OPTO TREMOLO • PANNING

RING MODULATOR

**SPEED      DEPTH      TWEAK      TWEEZ      MIX**

DEPTH adjusts drum depth. ————

TWEAK adjusts horn depth. ————

TWEEZ adjusts drive. ————

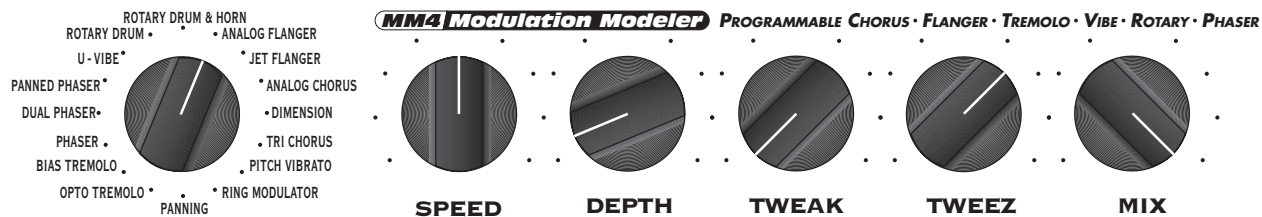
### Analog Flanger – based on MXR Flanger.

This is our model of the classic MXR Flanger. You’ve probably heard it many times on Van Halen’s *Fair Warning*, *Women and Children First*, and “Unchained.” It’s a very warm-sounding flanger, and features a bucket brigade analog circuit design, as well as a uniquely-shaped waveform.

Our Analog Flanger model features all of the control and great tone of its inspiration. The TWEAK knob controls feedback, and the TWEEZ knob serves as the manual control – which lets you adjust the delay time for the flanging effect.



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TWEAK adjusts feedback.

TWEEZ adjusts manual (delay time).

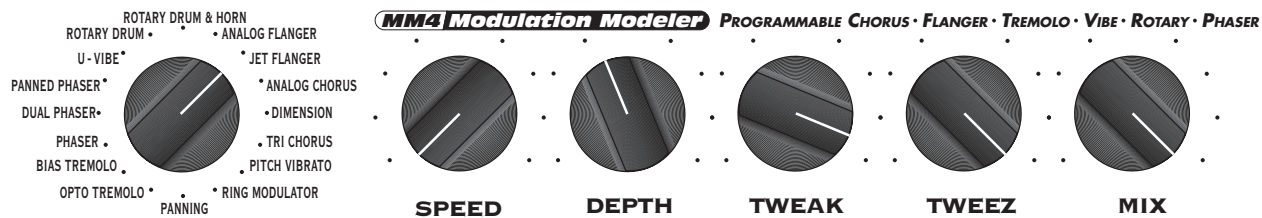
### Jet Flanger – based on A/DA Flanger.

This is our model of the A/DA “studio quiet” Flanger. Introduced in 1977, this stomp box has a sweep range of 35-to-1 and a built-in compressor that work together with the tone circuitry to give the A/DA its signature jet-like sweep. It’s a bit more dramatic than the MXR, and has a different wave shape – and that’s why ya gotta have both.

The DEPTH knob controls the sweep range. TWEAK adjusts feedback, and the TWEEZ knob emulates the A/DA flanger’s “Manual” knob. Plug in, spin up the depth and feedback, and get ready for take-off.



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TWEAK adjusts feedback.

TWEEZ adjusts manual (delay time).

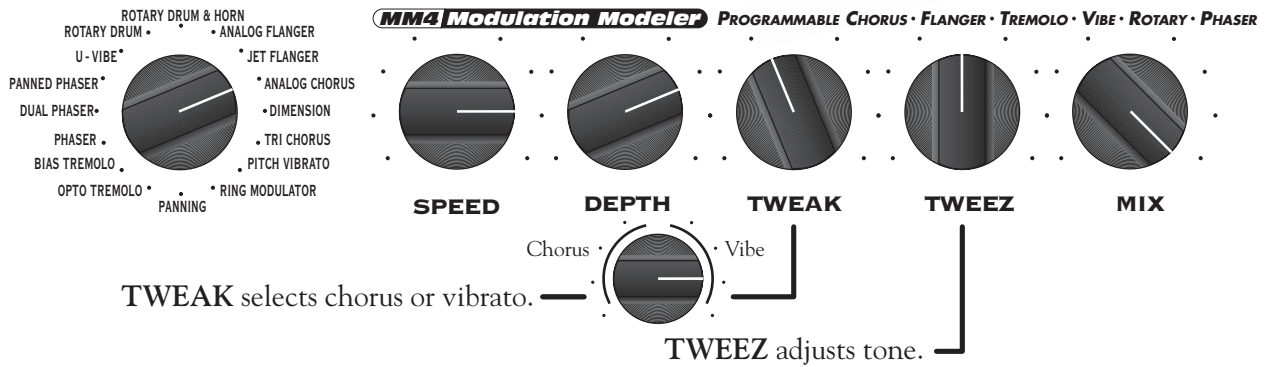
### Analog Chorus – based on Boss CE-1 Chorus Ensemble.

The MM4 wouldn't be complete without paying homage to the original stomp box chorus, the Boss CE-1. The CE-1 came onto the music scene in 1977 and made waves with its big, warm and groovy chorus tones. Quickly, it found its way onto Andy Summers' pedal board and then into our homes via The Police. Controls included Speed, Depth and a switch to go from chorus to vibrato mode. The CE-1 is spacious, and sounds great into a distorted amp. The Analog Chorus model is every bit as warm and gooey as its inspiration. Dial up some lush landscape and enter into chorus heaven.

The TWEAK knob acts like a 2-position switch to select either the chorus or vibe effect.



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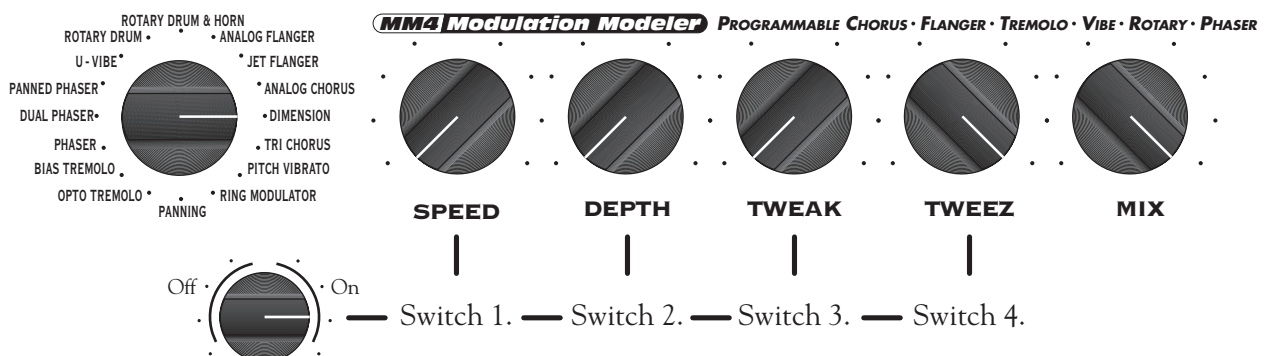
### Dimension – based on Roland Dimension D.

This unique effect is based on the classic Roland Dimension D which was one of the first true-stereo chorus units and featured two separate delay lines working off the same oscillator. These independent chorus effects were then panned between the stereo outputs, with a resulting stereo image that's broader than a double-wide trailer. Relatively subtle in its nature, the Dimension D became an industry standard for double-track effects.

For the Dimension model, the SPEED, DEPTH, TWEAK, and TWEEZ knobs each act as a two position switch. Speed and Depth were preset on the Dimension D, and could be recalled by pressing



one of the four front panel push-button switches. Different combinations of on and off for the various switches gave different speed and depth settings. Try a variety of knob settings for the Dimension model and get a range of shimmering lushness.



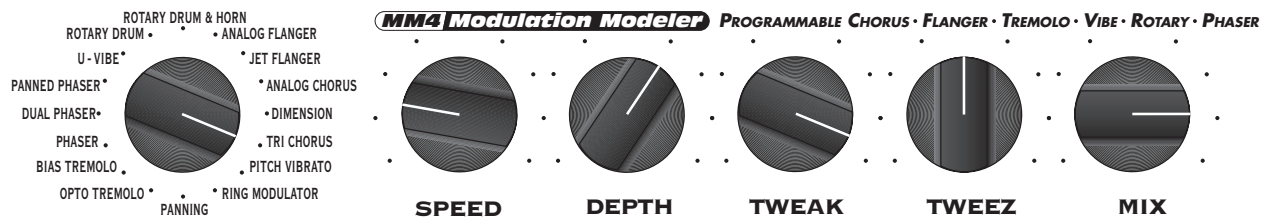
### Tri Chorus – based on Tri-Stereo Chorus.

This model is based on the elusive Song Bird / DyTronics Tri-Stereo Chorus. You may have never seen one, but you've heard it hundreds of times – this was the definitive chorus of Michael Landau, Tim Pierce, Steve Lukather, Dann Huff and most of the L.A. Studio scene. This analog chorus featured 3 chorus circuits working off of 12(!) low frequency oscillators and three separate delay lines. Nothing produced a wider, more spacious stereo image than this. And if you had one in your rack-system, you probably paid dearly for this holy grail of chorus tone.

For the Tri-Stereo model, our crafty scientists faithfully recreated the tone of this legendary circuit and double-wide stereo image – plug in and bliss out!



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DEPTH adjusts the depth of circuit 1.

TWEAK adjusts the depth of circuit 2.

TWEEZ adjusts the depth of circuit 3.

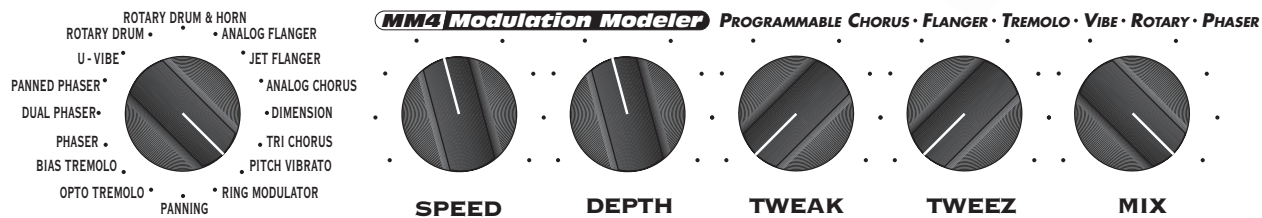
### Pitch Vibrato – based on Boss VB-2.

This model is based on one of those really cool effects you've always wanted to use, but could never justify buying – the Boss VB-2 vibrato. The VB-2 featured a bucket brigade circuit that produced bubbly vibrato, but its big claim to fame was the "rise time" control. Thanks to this clever circuit, each time you kicked it on, it sped up to where you last had it set.

Pretty keen, right? We figured it deserved a place here in your stuffed-full magic box of musical modulations. The TWEEZ knob gives you a "peak follower" control, allowing you to make the vibrato rate sensitive to input level, so that a louder input signal speeds up the vibrato, and a lower volume input slows it down. Knock yourself out.



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TWEAK adjusts rise time.

TWEEZ adjusts volume sensitivity (peak follower).



### Ring Modulator.

It's out there somewhere between *Plan Nine From Outer Space* and *Phantom Menace*. Ring modulators are for those special times when you want different, weird, distinctive, strange and otherwise nontraditional guitar sounds. Ring Modulation is a very percussive sounding effect, and sounds almost

as if you're changing the signal in a twistedly mathematical, torturing-the-computer sort of way. Via the TWEEZ knob, the Ring Modulator model gives you a choice of modulation flavors – AM (amplitude modulation), FM (frequency modulation) or somewhere in between.

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ROTARY DRUM & HORN  
 ROTARY DRUM • U-VIBE\*  
 PANNED PHASER\*  
 DUAL PHASER\*  
 PHASER • BIAS TREMOLO • OPTO TREMOLO\*  
 PANNING

ANALOG FLANGER • JET FLANGER  
 ANALOG CHORUS • DIMENSION  
 TRI CHORUS • PITCH VIBRATO  
 RING MODULATOR

**SPEED**    **DEPTH**    **TWEAK**    **TWEEZ**    **MIX**

TWEAK adjusts shape.

TWEEZ blends from AM to FM.

AM    FM

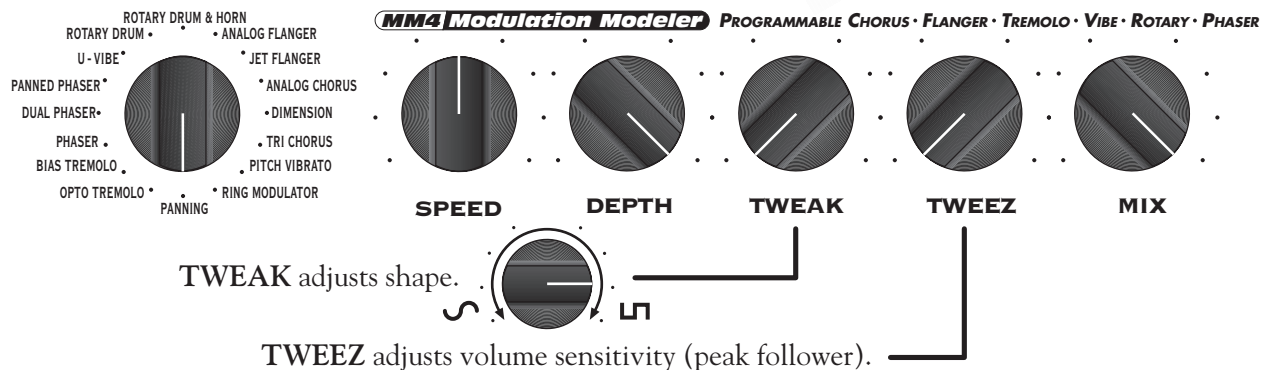
### Panner.

From here to there and back again, what can you say about a panner? Well, I guess you can say this: a panner makes your sound constantly *pan* back and forth between left and right channels. If you're looking for something to keep you up late nights with your headphones on, this is it. This effect is only gonna work for you in stereo, by the way; if you try and run it in mono, it's basically tremolo.

The TWEAK knob lets you choose the waveform that controls the movement of your sound from left to right. The sine waveform (fully counterclockwise) slides your sound smoothly from side to side. The square wave (fully clockwise) gives you that extreme bouncing-from-left-to-right sort of experience.



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ANALOG FLANGER • JET FLANGER  
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 RING MODULATOR

**SPEED**    **DEPTH**    **TWEAK**    **TWEEZ**    **MIX**

TWEAK adjusts shape.

TWEEZ adjusts volume sensitivity (peak follower).