



# RING THING

## Single Sideband Modulator

Congratulations on your purchase of the Electro-Harmonix Ring Thing. The Ring Thing has four selectable modes that utilize either frequency or pitch shift modulation: Ring Modulation, Single Sideband – Upper Band, Single Sideband – Lower Band and Pitch Shift. The Ring Modulator section builds upon the original EHX Frequency Analyzer adding to it selectable carrier waveforms, a sweepable filter, presets and expression pedal control. Single-sideband modulation is a new effect based on Ring Modulation but where only one band is present, making it a more harmonious effect. Finally, we have a powerful modulatable pitch shifter that can do detune effects, vibrato, chorus, transpose or even whammy when you use an external expression pedal.

### Special Features of the Ring Thing:

- Four selectable modes: Ring Modulation (RM), Upper Band Modulation (UB), Lower Band Modulation (LB), Pitch Shift (PS).
- Single Sideband frequency shifter with separate simultaneous upper and lower sideband outputs.
- Automatically tune the Ring Modulator to any incoming signal by pressing and holding the PRESET FSW.
- The Ring and SSB Modulators can automatically tune to a note you play on your instrument
- Pitch shifter with range of +/- 2 octaves.
- Five modulation waveforms: Square, Sine, Ramp up/down, Triangle.
- Expression Pedal control over carrier frequency or pitch shift amount.
- Optional external oscillator/modulation input.
- Mono Input / Stereo Output in all modes.
- Save and load up to 9 presets.

**WARNING: The Ring Thing comes equipped with an Electro-Harmonix 9.6DC-200BI power supply (same as used by Boss™ & Ibanez™: 9.6 Volts DC 200mA). The Ring Thing requires 190mA at 9VDC with a plug that is center negative. Using the wrong AC adapter, even those made by Electro-Harmonix, could cause harm to the unit, the adapter or you. The Ring Thing does not use batteries.**

## - Quick Start Guide -

### **BASIC AMPLIFIER CONNECTION SETUP**

1. Using an unbalanced instrument cable, plug the output of your instrument into the INST Input Jack on the right side of the Ring Thing.
2. Connect an unbalanced instrument cable from the MONO L output jack on the left side of the Ring Thing. Connect the other end of the instrument cable to the input of a guitar, bass, or keyboard amplifier.
3. Plug the AC Adapter into a wall outlet.
4. Plug the barrel connector of the AC Adapter into the 9V power jack at the top of the Ring Thing. **Polarity is center negative.**
5. Apply power to the amplifier.

**BASIC SETTINGS FOR RING MODULATOR MODE** – This mode brings back all the sounds of the Frequency Analyzer, with a few extras.

1. Connect the Ring Thing as described in Basic Amplifier Connection Setup.
2. Press the BYPASS footswitch so the STATUS LED is on
3. Press the MODE knob so that the Left LED is lit: RM.
4. Turn the following knobs to 50% or 12 o'clock: BLEND, WAVE, FINE/DEPTH, and COARSE.
5. Turn the FILTER/RATE knob fully clockwise.
6. If an expression pedal is plugged in set it to the toe down position.
7. To change the modulation frequency, turn the FINE and/or COARSE knobs.

**Automatically Tune the Ring Modulator** – Play a single note on your instrument and then press and hold the PRESET/TUNE footswitch for 1 second. The Ring Thing will automatically tune its internal modulator to the note you are playing. This function is monophonic, it is designed to search for the fundamental pitch rather than figure out what chord is being played. The PRESET/TUNE footswitch can be held down to continuously tune the ring modulator to the input signal.

**The WAVE Function** – the WAVE knob sets the waveform of the Ring Modulator in RM and PS modes. Starting from full counter-clockwise, the choices are: SQUARE, SINE, RAMP DOWN, RAMP UP, and TRIANGLE. Try turning the knob as you play, you will notice some waveforms produce more harmonics than others. Additionally you can crossfade from SQUARE to SINE to RAMP DOWN, then it switches to RAMP UP and TRIANGLE.

**Using an External Oscillator** - To use an external oscillator, as the RM's carrier, plug the output of another instrument, recording or mic pre into the MOD input jack and turn the WAVE knob fully counter-clockwise. The signal at the MOD input jack will override the Ring Thing's internal modulator. In RM, UB and LB modes, the

external oscillator will become the effect's carrier signal. In PS mode, the external oscillator will modulate the effect's pitch shift amount.

**Using an Expression Pedal** – Plug an expression pedal into the EXP ¼" Jack and set the FINE knob to full counter-clockwise to control the Modulation Frequency. The COARSE knob sets the range at the toe-down position.

**Using the Filter** – In RM mode, the FILTER/RATE knob control the cutoff frequency of the low pass filter, allowing you to adjust the tone or harmonic richness of the ring mod effect. As you turn the knob clockwise, the tone becomes brighter.

**Using Ring Modulation as Tremolo** – In RM mode, if you turn up the BLEND knob to the full clockwise position, and turn the COARSE knob down below 9 o'clock, the Ring Thing will act like a tremolo effect. Use the WAVE knob to change the shape of the tremolo. Use the FINE knob to fine tune the rate.

**Troubleshooting** – Not hearing the Ring Modulator or just something unexpected? Check to make sure that the BLEND knob is 50% or higher and that the FILTER/RATE knob is not turned to full counter-clockwise.

**BASIC SETTINGS FOR LOWER/UPPER SIDEBAND MODE** – UB and LB modes split up the ring modulator signal into its respective sideband components. Each sideband is sent to either the MONO/L or R output jacks, where the selected mode is always sent to the Left/Mono output. For example, in UB mode, the upper band is output from the MONO/L output and the lower band is sent out the R output.

1. Connect the Ring Thing as described in Basic Amplifier Connection Setup.
2. Press the BYPASS footswitch so the STATUS LED is on
3. Press the MODE knob so that the Center LED is lit for UB or the Right LED for LB.
4. Turn the following knobs to 50% or 12 o'clock: BLEND, WAVE, FINE/DEPTH, and COARSE.
5. Turn the FILTER/RATE knob fully clockwise.
6. If an expression pedal is plugged in set it to the toe down position.
7. To change the modulation frequency, turn the FINE and/or COARSE knobs.

**Automatically tune the Single Sideband Modulators** – Play a single note on your instrument and then press and hold the PRESET/TUNE footswitch for 1 second. The Ring Thing will automatically tune its internal modulator to the note you are playing. This function is monophonic, it is designed to search for the fundamental pitch rather than figure out what chord is being played. The PRESET/TUNE footswitch can be held down to continuously tune the ring modulator to the input signal.

**The WAVE Function** – the WAVE knob sets the waveform of the Single Sideband Modulators in UB/LB mode. At the center position (12 o'clock) the modulator is a

sine wave. Turning WAVE counter-clockwise adds a 2<sup>nd</sup> harmonic to the sine wave, turning the WAVE knob clockwise adds a 3<sup>rd</sup> harmonic to the sine wave.

**Using an External Oscillator** - To use an external oscillator (such as another instrument, recording or mic pre output) as the carrier signal for UB and LB modes, turn the WAVE knob fully counter-clockwise and plug the output of the oscillator into the MOD Input jack.

**Using an Expression Pedal** – Plug an expression pedal into the EXP ¼" Jack to control the Modulation Frequency. Turn the FINE knob fully counter-clockwise to enable the expression pedal. The COARSE knob sets the range at the toe-down position.

**Troubleshooting** – Not hearing the Single Sideband Modulators or just something unexpected? Check to make sure that the BLEND knob is 50% or higher and that the FILTER/RATE knob is not turned to full counter-clockwise.

**BASIC SETTINGS FOR PITCH SHIFT MODE** – All incoming notes are shifted by the same factor in Pitch Shift mode.

1. Connect the Ring Thing as described in Basic Amplifier Connection Setup.
2. Press the BYPASS footswitch so the STATUS LED is on
3. Press the MODE knob so that ALL LEDs are lit: Pitch-Shift.
4. Turn the following knobs to 50% or 12 o'clock: WAVE and FINE/DEPTH.
5. Turn the BLEND and COARSE knobs fully clockwise.
6. Turn the FILTER/RATE knob fully counter-clockwise, internal modulation will be off.
7. If an expression pedal is plugged in set it to the toe down position.
8. To change the Pitch Shift frequency, turn the FINE and/or COARSE knobs. The COARSE knob has a range of +/- 2 octaves set in discrete steps. Use the FINE knob to access tunings in between these discrete steps.

**Using Internal Modulation on Pitch Shift** – the WAVE knob sets the waveform of the internal modulator in Pitch Shift mode. To enable modulation in this mode, the FILTER/RATE knob must be turned up from full counter-clockwise. Once the FILTER/RATE knob is turned up from zero, the FINE/DEPTH knob changes its function from FINE to modulation DEPTH. The FILTER/RATE knob sets the RATE of the modulation and the FINE/DEPTH knob becomes modulation DEPTH. Starting from full counter-clockwise, the modulation waveforms are: SQUARE, SINE, RAMP DOWN, RAMP UP, and TRIANGLE.

**Using an External Oscillator** - To use an external oscillator to modulate pitch shift, turn the WAVE knob to full counter-clockwise and plug the external oscillator into the

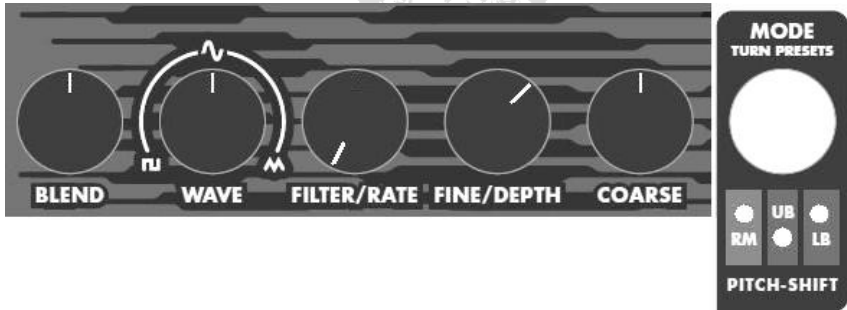
MOD input. The FINE/DEPTH knob controls the depth of the external modulation. Note: turning FILTER/RATE to full counter-clockwise will disable external modulation.

**Using an Expression Pedal** – Plug an expression pedal into the EXP ¼" Jack to control the Pitch Shift amount. The expression pedal's pitch shift range is set by the COARSE knob. The toe down position will be the current setting of the COARSE knob, the toe up position is no pitch shift, though you will still hear the pitch shift's modulation.

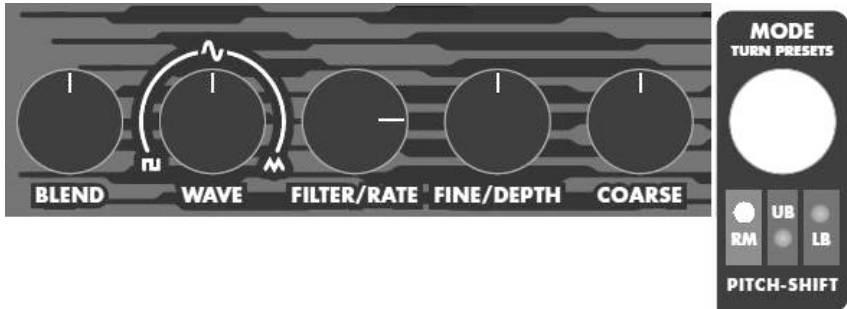
**Troubleshooting** – Not hearing the Pitch Shift or just something unexpected? Check to make sure that the BLEND knob is 50% or higher. If the modulation is making it hard for you to hear what is going on, turn modulation off by turning the FILTER/RATE knob down to full counter-clockwise and then set FINE to 12 o'clock.

**SUGGESTED SETTINGS** – Below are some suggested settings for getting started with the Ring Thing.

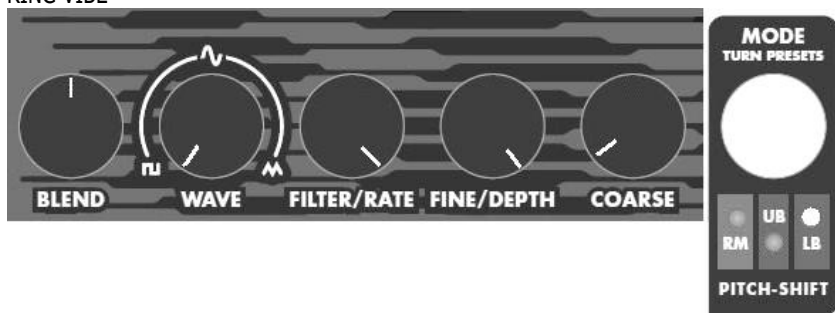
#### DETUNE



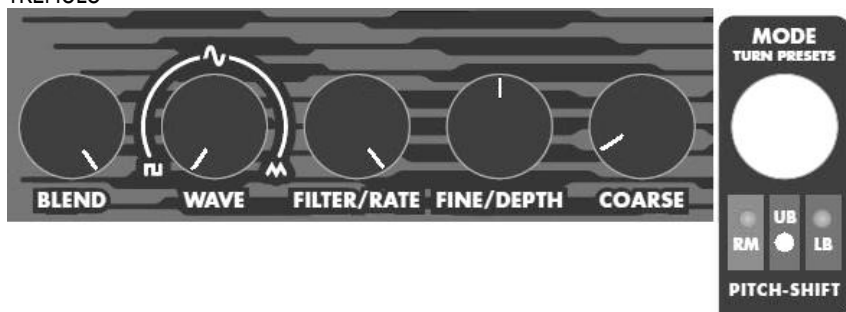
#### RING MOD



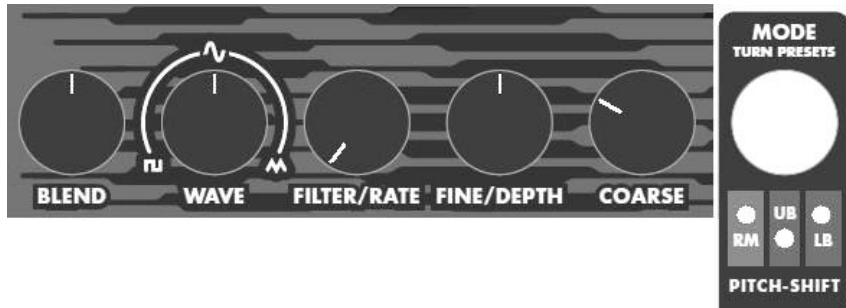
## RING VIBE



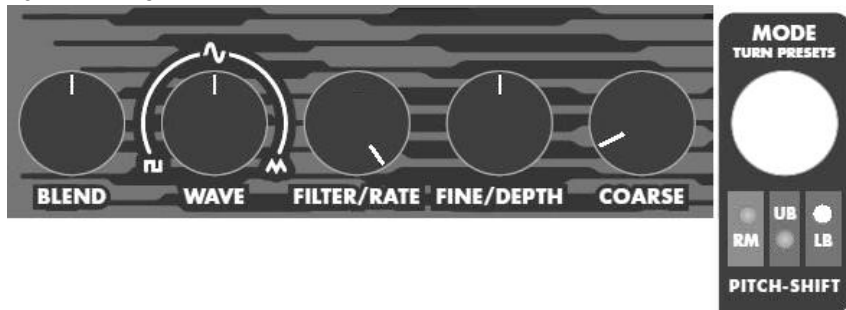
## TREMOLO



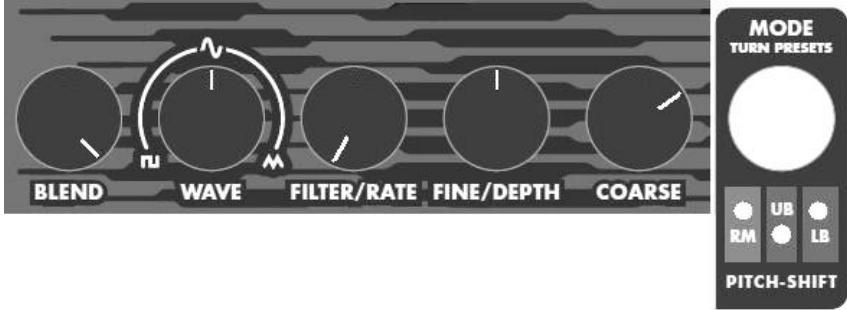
## SUB OCTAVE



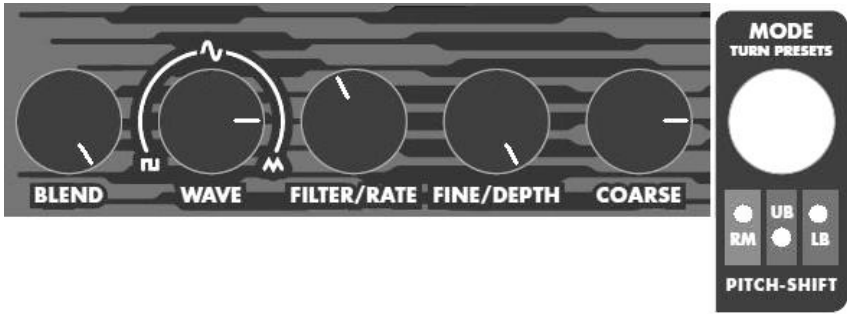
## ROTARY THING



OCTAVE UP/WHAMMY (Uses an optional expression pedal to control Pitch Shift)



PITCH MOD

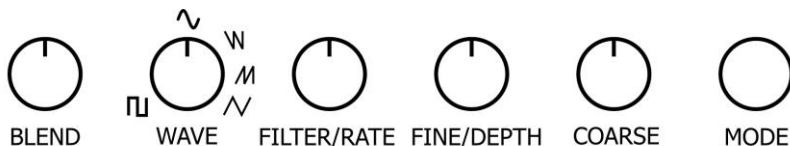


**- MODES -**

The Ring Thing has 4 modes to choose from: Ring Modulation (RM), Single Sideband-Upper Band (UB), Single Sideband-Lower Band (LB) and Pitch Shift (PS). Each mode gives the musician a different sonic palette to work with. In addition, each mode changes the function of some of the Ring Thing's knobs. In this section we will describe each mode and the functionality of the knobs that change with the mode.

Press and release the MODE knob to cycle through the four modes.

Below is a table displaying the function of each knob as it relates to the selected mode. Arrows indicate the function that occurs as the knob is turned to or towards the extreme knob position in that direction. You will notice some knobs, such as BLEND, do not change with the different modes while others, such as WAVE and FILTER/RATE have functions that are mode dependent.



◀ Dry...Wet ▶	Wave Shape See Diagram Above	◀ Low Pass No Filter ▶	Frequency ◀ -33%..+33% ▶	Frequency ◀ 0.1 to 2390Hz ▶	<b>RING MOD</b>
◀ Dry...Wet ▶	Wave Shape ◀ Sine+2F, Sine, Sine+3F ▶	◀ Low Pass No Filter ▶	Frequency ◀ -33%..+33% ▶	Frequency ◀ 0 to 2390Hz ▶	<b>UPPER SIDEBAND</b>
◀ Dry...Wet ▶	Wave Shape ◀ Sine+2F, Sine, Sine+3F ▶	◀ Low Pass No Filter ▶	Frequency ◀ -33%..+33% ▶	Frequency ◀ 0 to 2390Hz ▶	<b>LOWER SIDEBAND</b>
◀ Dry...Wet ▶	Wave Shape See Diagram Above	Mod Rate ◀ Off, 0.1Hz - 500Hz ▶	Semitone/*Depth ◀ -1.....+1 ▶	Pitch Shift ◀ -2 oct +2oct ▶	<b>PITCH SHIFT</b>

\*In Pitch-Shift mode only, the FINE/DEPTH knob becomes Modulation DEPTH when the FILTER/RATE knob is nonzero.

## MODE DESCRIPTIONS

**RM: Ring Modulator** – This mode is a standard Ring Modulator. In addition to dialing in the ring modulator’s carrier frequency, the Ring Thing allows additional control over the tone of the effect with a low pass filter (FILTER/RATE knob) and gives the musician a choice of 5 different modulation waveforms (plus the ability to use an external waveform). An optional expression pedal can also control the carrier frequency. Set the BLEND knob wherever you like for your ideal wet/dry mix.

**BLEND** – sets Wet/Dry Mix.

**WAVE** – sets the carrier or modulation waveform: Square, Sine, Ramp Down, Ramp Up or Triangle.

**FILTER/RATE** – sets the cutoff frequency for the effect’s low pass filter.

**FINE/DEPTH** – allows the musician to fine tune the carrier/modulation frequency.

**COARSE** – tunes the carrier/modulation frequency over a wide range.

**PRESET/TUNE FSW** – Press and release to load a preset. Press and hold to tune the carrier to the note you play on your instrument.

**EXP. PEDAL** – controls the carrier/modulation frequency.

**UB: Upper-Sideband Modulation** – A standard ring modulator creates two sidebands at a set distance from the carrier frequency. In Upper-Sideband mode, the Ring Thing outputs the Upper Sideband to the Left Output, and the Lower Sideband to the Right Output. See LB below for the knob functions while in UB or LB modes.

**LB: Lower-Sideband Modulation** – In Lower Sideband mode the Ring Thing outputs the Lower Sideband to the Left Output, and the Upper Sideband to the Right Output.



**BLEND** – sets Wet/Dry Mix.

**WAVE** – adjusts the wave shape of the carrier or modulation waveform by adding or subtracting harmonics to the carrier's sine wave.

**FILTER/RATE** – sets the cutoff frequency for the effect's low pass filter.

**FINE/DEPTH** – allows the musician to fine tune the carrier/modulation frequency.

**COARSE** – tunes the carrier/modulation frequency over a wide range.

**PRESET/TUNE FSW** – Press and release to load a preset. Press and hold to tune the carrier to the note you are playing on your instrument.

**EXP. PEDAL** – controls the carrier/modulation frequency.

**Pitch-Shift** – In Pitch Shift mode all notes from the guitar signal are shifted up or down by the same amount. This mode preserves the harmonic relationships in the notes so that the pitch shifted notes and chords sound much more like the notes that go into the Ring Thing.

**BLEND** – sets Wet/Dry Mix.

**WAVE** – sets the modulation waveform: Square, Sine, Ramp Down, Ramp Up or Triangle.

**FILTER/RATE** – sets the pitch shifter's modulation rate. Full counter-clockwise disengages modulation.

**FINE/DEPTH** – acts as both a FINE control and modulation DEPTH control. When modulation is off, it fine tunes the pitch shift amount. When modulation is on it sets modulation depth.

**COARSE** – sets the pitch shift amount +/- 2 Octaves. No Pitch Shift is at 12 o'clock.

**PRESET/TUNE FSW** – Press and release to load a preset.

**EXP. PEDAL** – controls the pitch shift amount.

- **CONTROLS, INDICATORS and I/O** -

## MODE KNOB

This is the white knob located in the upper right corner of your Ring Thing. The MODE knob is a rotary encoder enabling the user to choose the mode they want to play through and also scroll through the nine presets of the Ring Thing.

The MODE knob has a push switch that can be used to change modes or save a preset. To change modes, press and release the MODE knob. To save a preset, push down and hold the MODE knob for 3 seconds. You will then see all the Preset LEDs blink rapidly. Continue to hold down the MODE knob until the LEDs stop blinking. At this point the preset is saved and you can release the knob. All 9 preset slots are fully programmable and can be saved in any mode.

Turning the MODE knob allows you to scroll through the presets. A clockwise rotation will scroll up and a counter-clockwise rotation will scroll down through the LED ladder. You can

also scroll up past PRESET 1 where no LEDs in the LED ladder are lit. This puts you into a “what you see is what you get” mode where the current preset is unloaded and the actual knob positions take over the sound.

## COARSE KNOB

The COARSE knob controls the Ring Modulator frequency and the Pitch Shift amount in their respective modes. This knob is a good starting place when trying to dial in a new sound. The COARSE knob function in each mode is listed below:

**Ring Modulator and Upper/Lower Sideband Modes:** Controls the distance of the two sideband frequencies of the Ring Modulator. The range is 0.1 Hz (counter-clockwise) to 2940 Hz (clockwise)

**Pitch Shift:** Controls the amount of pitch shift. The range is -2 octaves (counter-clockwise), no pitch shift at 12 o’ clock, +2 octaves at full clockwise. The COARSE knob pitch shifts in discreet half steps. The user can tune in between these steps with the FINE knob.

## FINE/DEPTH KNOB

The FINE/DEPTH knob controls the Ring Modulator frequency and Pitch Shift amount, but with a more limited range than the COARSE knob. In Pitch Shift mode the FINE/DEPTH knob’s range is +/- 1 semitone. Use this knob to dial in a more precise frequency in RM, UB and LB modes. When modulation is enabled this knob becomes the modulation DEPTH knob. The FINE knob function in each mode is listed below:

**Ring Modulator and Upper/Lower Sideband Modes:** The FINE/DEPTH knob works in conjunction with the COARSE knob to fine tune the carrier/modulation frequency. First set the COARSE knob. Then use the FINE knob to hone in on the exact tuning frequency for your sound.

**Pitch Shift:** If pitch modulation is off (FILTER/RATE knob at full counter-clockwise) the FINE/DEPTH knob works with the COARSE knob to set the amount of pitch shift. The range is -1 semitone at counter-clockwise to +1 semitone at full clockwise. When using the internal modulation (when the FILTER/RATE knob is above full CCW) the FINE/DEPTH knob controls the depth of modulation. The depth increases as you turn the FINE/DEPTH knob clockwise.

## FILTER/RATE KNOB

The FILTER/RATE knob acts as a low pass filter in all three ring modulator modes and as a modulation RATE control in Pitch Shift mode. The filter attenuates at 36dB per octave above the cutoff frequency. The FILTER/RATE knob function in each mode is listed below:

**Ring Modulator and Upper/Lower Sideband Modes:** The FILTER/RATE knob controls a low pass filter on the effect in the ring modulator modes. The filter is disabled at full clockwise. Turn FILTER/RATE counter-clockwise to cut high frequencies, and eventually the entire wet signal. As you turn FILTER/RATE clockwise, the effect gets brighter.

**Pitch Shift:** The FILTER/RATE knob exclusively controls the modulation rate in pitch shift mode. The modulation is turned off at counter-clockwise, and increases up to 500 Hz at full clockwise. **Please note:** when the FILTER/RATE knob is increased above zero (counter-clockwise) the FINE/DEPTH knob sets the amount of modulation. If FINE/DEPTH is set at zero, you will not hear pitch modulation.

## WAVE KNOB

The WAVE knob changes the waveshape of the modulation signal working in two different ways depending on the selected mode. In Ring Modulator and Pitch Shift modes, it controls the shape of the modulation waveform with five different choices: Square, Sine, Ramp up, Ramp Down, and Triangle. **Please note:** the WAVE knob will crossfade from Square wave to Sine wave, then from Sine wave to Ramp Down. After Ramp Down, it switches to Ramp Up and then to Triangle as you turn the knob clockwise. In Lower or Upper Sideband mode the ring modulator is always a sine wave, and the WAVE knob can be used to add a 2<sup>nd</sup> harmonic (counter-clockwise) or a 3<sup>rd</sup> harmonic (clockwise). The WAVE knob function in each mode is listed below:

**Ring Modulator:** The WAVE knob contains five different modulator waveforms in ring modulator mode. Starting from full counter-clockwise, the choices are: SQUARE, SINE, RAMP DOWN, RAMP UP, and TRIANGLE.

**Upper/Lower Sideband:** The Upper/Lower Sideband mode contains only Sine wave modulation. Second or third harmonic content can be added by turning the WAVE knob counter-clockwise (2F) or clockwise (3F).

**Pitch Shift:** The WAVE knob is used in Pitch Shift mode only when the FILTER/RATE knob is not zero or full counter-clockwise. When the modulation rate is nonzero, the WAVE knob acts as it does in Ring Modulator mode. Starting from full counter-clockwise: SQUARE, SINE, RAMP DOWN, RAMP UP, and TRIANGLE.

**Please note:** For all modes, if you want to use an external oscillator (via the MOD input jack) as the ring modulator's carrier frequency or to modulate the pitch shifter, the WAVE knob must be set to full counter-clockwise. If the WAVE knob is set above full counter-clockwise, the external modulator is disabled.

## **BLEND KNOB**

The BLEND knob is a wet/dry control for the effect outputs. Turning the BLEND knob to its minimum counter-clockwise position will yield 100% dry signal with no wet. Turning the BLEND knob to its maximum clockwise position will give you 100% wet signal with no dry. A mix of wet and dry signals will occur when BLEND is set anywhere in between the extreme settings.

## **PRESET LED LADDER**

The Ring Thing accommodates the saving and recall of 9 presets. The preset indicators are located in the PRESET LED ladder below the COARSE knob. Each preset has an associated LED next to it indicating which preset is selected. Turn the MODE encoder to scroll through the PRESET LED ladder, though this will not load the presets. Press and release the PRESET/TUNE FSW to load the currently selected preset.

## **PRESET/TUNE Footswitch**

The PRESET/TUNE footswitch performs two functions: loading and cycling through presets, and tuning the ring modulator to the incoming signal at the INST input jack (ring modulator modes only).

To load a preset, turn the MODE knob to the preset number you want to load, then press and release the PRESET/TUNE FSW. The PRESET LED will light up solid indicating the current preset is loaded. While a preset is loaded, press and release the PRESET/TUNE FSW to load the next preset. Repeatedly pressing and releasing the PRESET/TUNE FSW will continually cycle through the presets, loading each preset along the way. After PRESET 9, the Ring Thing loads "what you see is what you get" mode, no preset LEDs are lit and the current knob positions are loaded. Press and release PRESET FSW to load PRESET 1.

While in RM, UB or LB modes, press and hold the TUNE FSW for 1 second or longer and the Ring Thing automatically tunes its carrier frequency to the note you are playing. This feature is monophonic, meaning it does not tune to chords, only single notes. The setting of the COARSE and FINE knobs is no longer valid after tuning with the PRESET/TUNE FSW. Holding down the PRESET/TUNE FSW while in PS produces no change.

## **PRESET LED**

Located near the PRESET/TUNE FSW, the PRESET LED will light up solid when a preset is loaded. It will blink rapidly when a change is made to the loaded preset, signifying that a preset is loaded but has been changed. If this occurs, press and release the PRESET footswitch to revert back to the saved preset.

## **BYPASS Footswitch / STATUS LED**

The Bypass footswitch toggles the Ring Thing between effect mode and bypass mode. If the STATUS LED is lit then the Ring Thing is in effect mode. If the STATUS LED is off, then the Ring Thing is in bypass mode. In Bypass mode, the MONO/Left Input Jack is connected directly to the MONO/Left and Right Output Jacks.

## **INST INPUT Jack**

The main input jack to the Ring Thing is the INST INPUT jack. The Ring Thing's input is mono. The input impedance presented at the INST input jack is 2 M $\Omega$ .

## **MOD INPUT Jack**

The Ring Thing allows for external modulation input through the MOD input jack. Connect a modulation source and set the WAVE knob to full counter-clockwise to enable external modulation. The input impedance presented at the MOD input jack is 2 M $\Omega$ .

## **EXP INPUT Jack**

The Ring Thing allows for expression pedal input via the EXP input jack. The expression pedal must have a Tip-Ring-Sleeve plug attached to it. It is important that the expression pedal have the correct polarity. The tip of the plug must be connected to the wiper of the potentiometer inside the expression pedal. If you are not sure what type of expression pedal to use, try to purchase one with a polarity switch so that it will work with many different types of instruments. Some suggested Expression Pedals: M-Audio EX-P, Moog EP-2, Roland EV-5 or Boss FV-500L. You may also connect a control voltage to this jack. The Control Voltage range must be between 0 V to 5 V. Here's what you can do with an expression pedal:

**RM/UB/LB Modes:** An expression pedal can control the ring modulator frequency, replacing or working in conjunction with the COARSE and FINE knobs or the automatic tuning function. **To use an expression in these modes, the FINE knob must be set fully counter-clockwise.** Setting the FINE knob to anywhere other than fully counter-clockwise will disable the expression pedal function. Use the COARSE knob to set the toe down position or the total range of

the Exp. Pedal. The expression pedal range can also be set by automatically tuning to a note you play on your instrument using the PRESET/TUNE FSW. When doing this, the toe-down position will be the tuned frequency.

**Pitch-Shift Mode:** An expression pedal can control the pitch shift amount, just like a whammy pedal. The COARSE and FINE knob settings determine the upper limit or toe down position of the expression pedal. The toe up position is always zero pitch shift. If you have modulation set up on your pitch shift, the expression pedal will bend notes with the modulation.

In all modes, you can save the expression pedal's setting along with all knob settings.

### **MONO/L and R OUTPUT Jacks**

When using the Ring Thing in a mono output configuration, we suggest you use the MONO/L output. When using it in a stereo output configuration, use both the MONO/L and R output jacks.

In both RM and PS modes, the effect, after the BLEND knob, is sent to the L output jack and the R output is 100% dry signal. In both UB and LB modes one sideband is sent to each output. In UB mode, the upper band is output from the L output and the lower band is sent out the R output. In LB mode, the lower band is output from L output and the upper band is sent to the R output.

### **9V Power Jack**

Plug the output of the Ring Thing's supplied AC Adapter into the 9V power jack located at the top of the Ring Thing. The Ring Thing requires 9 - 9.6VDC at 200mA with a center negative plug. The Ring Thing accepts Boss style AC Adapters. The actual current draw of the Ring Thing is 190 mA.

### **Technical Specifications**

Sample Rate = 46.93 kHz

A/D and D/A Conversion Bit Resolution = 24 bits

Processed Audio Bit Resolution = 32 bits

### **- Presets -**

#### **PRESETS**

The Ring Thing has nine fully programmable presets. Any of the four available modes can be saved in a preset. Once a preset is saved, the Ring Thing will remember the preset after power has been disconnected.

Saving a preset will save the setting of all 5 of black knobs and the selected mode. It will also save a tuned-in ring modulator frequency whether tuned using the PRESET/TUNE footswitch or an expression pedal. The expression pedal setting at the time of saving the preset will be saved. If you save a preset without an expression pedal connected, and then recall the preset with an expression pedal present, the Ring Thing ignores the expression pedal.

### **PRESET SAVE PROCEDURE:**

1. Once you have created a sound you want to save, turn the MODE knob to the preset number you want to save the setting to.
2. Press and hold down the MODE knob for 3 seconds. Nothing will occur for 2 seconds, then all the preset LEDs will blink rapidly for 1 second.
3. After the LEDs stop blinking, release the MODE knob. The Preset LED will light up solid.
4. Your preset has been saved.

### **PRESET LOAD PROCEDURE:**

There are two options for loading presets:

1. Press and release the PRESET/TUNE FSW repeatedly until the preset you want to load is selected. Make sure the PRESET LED is lit to indicate your preset is loaded. **Please Note:** The current knob positions are no longer valid.
2. Use the MODE knob and the PRESET/TUNE FSW.
  - a. Turn the MODE knob so the preset number where the preset was saved is selected.
  - b. Press and release the PRESET Footswitch. The PRESET LED will light up to indicate that the Preset has loaded. **Please Note:** The current knob positions are no longer valid.

After loading a preset, if you move a knob, the knob's new location will supersede the preset's stored value for that knob. At this point, the PRESET LED will blink rapidly to indicate that a knob has been moved.

In addition, after loading a preset, if you use the MODE knob to scroll to another preset, the previously recalled preset will remain loaded. At this point you could save the currently loaded preset into another preset location by holding the MODE knob or press the PRESET/TUNE FSW to load a different preset.

### **PRESET UNLOAD PROCEDURE:**

A preset can be unloaded to restore the current knob positions so they represent what you hear. Turn the MODE knob clockwise until no LEDs are lit to unload the current preset and restore the sound to the current knob settings.

## **WARRANTY INFORMATION**

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Please register online at <http://www.ehx.com/product-registration> or complete and return the enclosed warranty card within 10 days of purchase. Electro-Harmonix will repair or replace, at its discretion, a product that fails to operate due to defects in materials or workmanship for a period of one year from date of purchase. This applies only to original purchasers who have bought their product from an authorized Electro-Harmonix retailer. Repaired or replaced units will then be warranted for the unexpired portion of the original warranty term.

If you should need to return your unit for service within the warranty period, please contact the appropriate office listed below. Customers outside the regions listed below, please contact EHX Customer Service for information on warranty repairs at [info@ehx.com](mailto:info@ehx.com) or +1-718-937-8300. USA and Canadian customers: please obtain a **Return Authorization Number (RA#)** from EHX Customer Service before returning your product. Include—with your returned unit—a written description of the problem as well as your name, address, telephone number, e-mail address, RA# and a copy of your receipt clearly showing the purchase date.

### **United States and Canada**

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### **- FCC COMPLIANCE -**

Note: *This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:*

- *Reorient or relocate the receiving antenna.*
- *Increase the separation between the equipment and receiver.*
- *Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.*
- *Consult the dealer or an experienced radio/TV technician for help.*

*Modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment under FCC rules.*