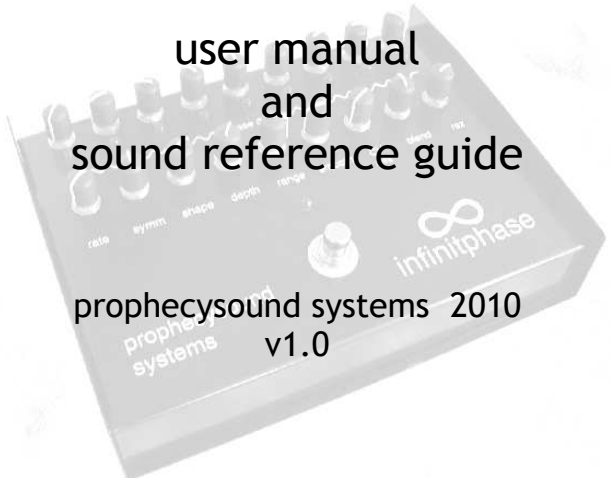
infinitphase mkii

user manual and sound reference guide



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Greetings and thanks

Thanks very much for purchasing the infinitphase from prophecysound systems. A lot of thought and hard work has gone into designing a device that covers traditional phase sounds, as well as one that opens up new possibilities for the modern musician. Please take some time to read through these operating instructions and to become familiar with the device's controls. More so than many other effects pedals, the infinitphase rewards time invested in playing and experimenting with it. My wish is that your journey of discovery is aided, and made more enjoyable, by these notes and instructions.

I sincerely hope you'll get a lifetime of fun and musical inspiration from your infinitphase, and enjoy making music with it as much as I've enjoyed creating it for you.

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prophecysound systems 2010

"When there is no more separation between 'this' and 'that,' it is called the still-point of the Tao. At the still point in the center of the circle one can see the infinite in all things."
- Chuang Tzu

What is phasing?

'Phasing' or 'phase shifting' involves creating animated notches at certain frequencies by filtering the source signal, then mixing this processed signal with the original (unprocessed) source signal. As in many other phasers, the infinitphase processes the audio signal using a series of all-pass filters, i.e. filters that pass all frequencies BUT change the phase relationship of these frequencies. By combining the phase-changed audio signal with the original signal, cancellation of certain frequencies – and reinforcement of others - occurs and hence produces a number of "notches". The movement of these "notches' is what provides the characteristic phasing sound.

Quick Start

If you are impatient to be making some noise, read the 'Setting up' section on page 5 and then skip ahead to the 'Example Settings' on page 12. You can come back and deal with the rest of this stuff later!

Document notes

Any time there is a reference to a physical control on the infinitphase it will be HIGHLIGHTED .

Setting up

Connect the supplied (or equivalent) 16V AC adapter to the socket on the rear of your infinitphase.

Please note – it is critically important that you only connect the appropriate AC adapter (not DC, AC) to your infinitphase, otherwise damage could occur!

Connect your instrument to the input socket on the right of your infinitphase, and the output on the left to your amplifier. Once power is connected you should see one of the nine LEDs turn on - don't worry if the LEDs aren't sequencing at the moment as we are only concerned that the power supply is operating correctly. Note that one of the nine LEDs will always be on, even in bypass mode; when engaged the LED below the footswitch will light.

Play your instrument, and toggle the footswitch if necessary to ensure that the pedal is processing the instrument signal – check to ensure that the effect engaged LED is lit.

Classic phase tone/home position

Ok! Probably the best way to get acquainted with your infinitphase is to set the controls to produce a "traditional" phasing sound, and then vary the controls one at a time while listening to the resultant change in the audio. We'll refer to these settings as the "home position", so as we proceed you can return your pedal's controls to known values if you get confused or lose track of the sound you are trying to achieve.

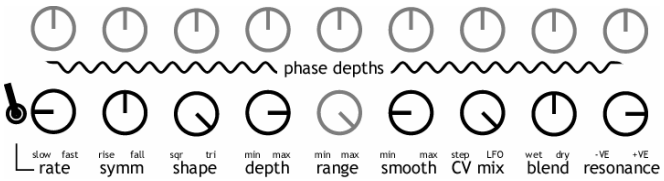


Figure 1 – infinitphase mkII 'home position' settings

A greyed-out control indicates that this setting is unimportant for the "home position", i.e. you can set this control to any value without changing the resultant sound. All of the PHASE DEPTH controls and the RANGE control settings are unimportant in this regard for this particular sound; we'll look at those later.

You should now be hearing an approximation of the "classic" smooth phase sweep! Play your instrument for a while and listen to how the infinitphase changes your tone.

LFO controls

The four LFO (low frequency oscillator) controls RATE, SYMMETRY, SHAPE and DEPTH) modify the rate at which the phasing effect occurs, the "shape" of the phasing effect and the depth of the phasing effect, respectively. Working from the "home position" settings, experiment with the RATE control. Note that a minimum (completely anti-clockwise) setting will reduce the phase rate to a very slow cycle (about .1 Hz).

Next, reset the RATE control to approx 12 o'clock and the DEPTH control to minimum, then slowly turn up the DEPTH control as you play; note that the frequency range over which phasing occurs is increased as the DEPTH control is turned up.

The SHAPE control allows you to select from a triangle LFO (maximum clockwise setting), a square LFO (maximum anti-clockwise setting) or anything in between on interim settings. Experiment with turning the SHAPE control slowly down from the maximum clockwise setting, and listen to the range of sounds available from changing just this one variable. Note: if you have the RANGE control setup at maximum, you should notice that the 9 LEDs give you a visual indication of the LFO waveshape you are hearing.

Return the controls to the "home position" and lets look at the SYMMETRY control. This control allows you to change the rise and fall time of the LFO. A 12 o'clock setting will give you an equal rise and fall time and hence a symmetrical LFO waveform, whereas other settings will result in asymmetrical LFO waveforms. For example with a triangle wave-shape selected, a minimum setting of the SYMMETRY control will result in

minimum rise time and maximum fall time, i.e. a falling sawtooth ; a maximum Symmetry control setting will result in a maximum rise time and minimum fall time, i.e. a rising sawtooth . With a square wave-shape selected, the SYMMETRY control will adjust the mark : space ratio, or how much time is spent with the square wave at 'high' and 'low' values. Play around with the SHAPE and SYMMETRY LFO controls for a while and dig the range of sounds that are available to you!

Audio Controls

I know you're keen to get to the sequence / step controls on your infinitphase, but I'm going to keep you hanging for a while longer while we take a quick look at the BLEND and RESONANCE controls.

The BLEND control is straight-forward; the full clockwise setting gives you maximum clean signal and minimum phased signal, the 12 o'clock setting gives you an equal amount of clean and phased signal, and the fully anti-clockwise setting gives you maximum phased signal and minimum clean signal. Setting the BLEND control fully anti-clockwise allows creation of vibrato (pitch modulation) sounds.

The RESONANCE control is different from the resonance (or feedback) control on most other phasers in that it allows you to return varying amounts of the processed signal back to the effect input both *in-phase* and *out-of-phase* with the original signal. A 12 o'clock setting of the RESONANCE corresponds to the minimum amount of resonance, with fully clockwise giving you maximum positive resonance (a "throaty" phase tone) and fully anti-clockwise maximum negative resonance (a "hollow" phase tone). At extreme settings the resultant sound might get a little harsh or 'digital' in nature, so if the phase effect is ever too intense on a particular sound you are working on be sure to examine, and adjust if necessary, the position of the RESONANCE control.

"infinitphase foreplay" - twiddle the BLEND and RESONANCE controls to elicit howls of musical delight from your instrument and amp until you just can't stand the tension anymore, then move onto the next section.

Step-phasing controls

This is the part of the document where we'll go through the other half of the your infinitphases' capabilities, become wiser, happier, better human beings ... and attain phasing Nirvana. Or something like that.

As we've been experimenting with different LFO waveshapes you would have noticed that the sequence LEDs (the nine lights at the top of your infinitphase) have been illuminated in different patterns. Corresponding with each LED there is a PHASE DEPTH control. By adjusting the CV MIX knob, we determine whether the phasing effect is controlled by the four LFO parameters (SPEED, SYMMETRY, SHAPE and DEPTH, CV MIX set at maximum) *or* by the nine PHASE DEPTH parameters (CV BLEND set at minimum) *or* by both (intermediate CV Blend setting).

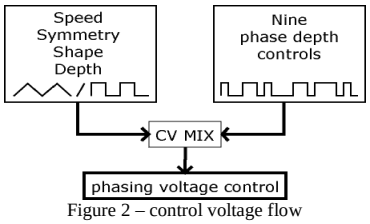


Figure 2 – control voltage flow

Set the infinitphase controls back to the "home position" settings (taking care to make sure that SMOOTHNESS is at minimum). Then, set the PHASE DEPTH controls however you choose; as long as some are at different positions than others (a few at minimum, a few at maximum) then that will be good enough for starters. Now reach down and turn the CV MIX control to the fully anti-clockwise (minimum) setting, and play your instrument. You should be hearing some abrupt phasing tones as the phase depth is switched through the PHASE DEPTH control settings. Locate the very right-most PHASE DEPTH control (you should be able to see the associated LED slowing very dimly) – experiment with turning this control, and note that it adjusts the depth for ***all*** the other PHASE DEPTH controls. This control is useful for tuning over which frequency the nine PHASE DEPTH controls operate. Note that even if the RANGE control is adjusted so that the LED underneath the right-most PHASE DEPTH control is never lit, this control will *still* have an overall effect on the position of the other PHASE DEPTH controls.

There is one final control to look at – the SMOOTHNESS control. This determines how quickly the values change between PHASE DEPTH control settings; a full anti-clockwise setting results in a very abrupt "popping" transition, whilst a full clock-wise setting results in a much smoother transition. Turn the SMOOTHNESS control slowly up from minimum to maximum, and listen to the difference it makes to the phase depth transitions. NOTE! At minimum settings the SMOOTHNESS control may possibly induce popping sounds or noise in the audio. While it is possible to change the operation of the SMOOTHNESS control to avoid this problem, this would also make it impossible to obtain some percussive effects, so it was decided to allow the user to determine what the minimum acceptable 'pop' level is. You can always turn the smoothness control slightly 'on', and avoid these issues, but if you are doing recording experiment with feeding noise into the infinitphase, and turning the smoothness all the way up and the resonance to maximum (fully clockwise or fully anti-clockwise). An instant rhythm section!

Basic controls - summary

That brings us to the end of our tour of the infinitphases' basic controls. Make no mistake – it takes time to understand how each of the controls operates individually, and how they interact as a whole. At first it's best to change one control at a time, listening how the resultant sound is effected, than to go on a knob tweaking frenzy and become lost in the possibilities – although for some of you that might be fun too! No matter how you go about it though, the more time you spend experimenting, the more easily you'll be able to reproduce previously-discovered sounds and come up with new ones.

Where to from here? If you have any of the extra modifications available for the infinitphase you may wish to checkout the next section where we'll look at the operation of the extra controls. Or, you may wish to skip ahead to the 'Example Settings' section where some 'starter' settings are documented. Finally, you may wish to toss the manual aside and abandon yourself to the infinite phase possibilities that abound in your new musical tool. Regardless of your path, have fun, and may you be inspired both musically and spiritually by your voyage of discovery…..

Modifications / extra controls

This section only applies if you have purchased one or more of the additional controls or options offered for the infinitphase.

LFO speed toggle

- located on LHS front near rate control, selects hi (down) or low (up). In hi-speed mode ring-modulator effects can be achieved; turn the BLEND control to minimum ('wet' position), RESONANCE

4/8 phase stage selection switch

- located on RHS near resonance control, selects the number of phase stages through which the effected signal is passed. A lower number of stages -> more subtle phasing; higher number of stages -> a stronger phasing effect.

LFO height control

-located on LHS / rear or front LHS, adjusts central frequency around which LFO varies. 'Default' setting is approximately 12 o'clock.

Sample and Hold / 'random' LFO

- rate control left front, toggle switch left center. With the toggle switch up and the CV mix at full anti-clockwise position will utilize the step-phasing controls; with the toggle down the Sample and Hold mode will be engaged, the rate control adjusting the rate of change of the random signal.

Phase manual sweep jack

- rear, orange jack. *Only use a Boss EV5 or direct equivalent!* When the pedal plug is inserted, CV mix will pan between step-phasing (fully anti-clockwise) and the manual sweep of the expression pedal (fully clockwise). Note that you may need to adjust the minimum value control on the EV5 for best control of sweep range and amplitude.

Stereo outputs

- rear metal ¼" socket, rightmost when looking from rear is main output. *W*ith this mod, bypass become buffered bypass; the blend control now operates across both channels at the same time. The Aux output consists of an inverted version of the phased signal mixed with the clean signal, giving rise to a full and spacious sound field when both outputs are amplified and sent to separate amps / speakers.

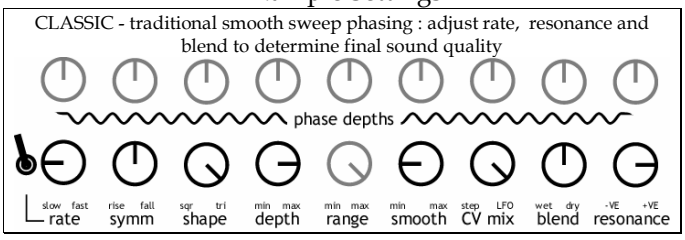
Technical Information

Only operate your infinitphase with the supplied – or direct equivalent – AC adapter. While most effects pedals operate from a DC voltage, the infinitphase utilizes an approximately 16VAC input from the adapter, and processes this voltage internally to produce +/-15VDC for powering of components. This results in a significant increase in headroom over the average phase shifter running from 9VDC! The internal power supply is over-engineered to provide low noise and minimal interference between the audio and control voltage sections; clean, low noise, artifact-free sound is what it's all about.

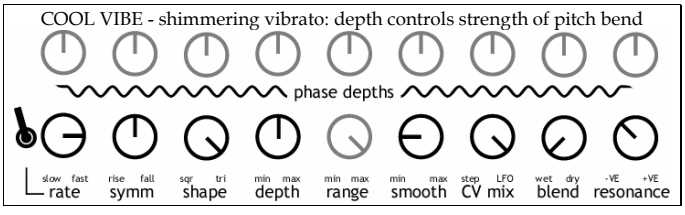
The nine phase LEDs should always give you an accurate visual indication of the current LFO settings. If they don't, or your infinitphase otherwise seems to not functioning correctly, it's possible your unit needs to be re-calibrated via adjustment of one or more of the internal trimpots. Please contact me if you believe this to be the case, and we can run through the calibration procedure. It's a really good idea NOT to fiddle with these trimpots otherwise!

Example Settings

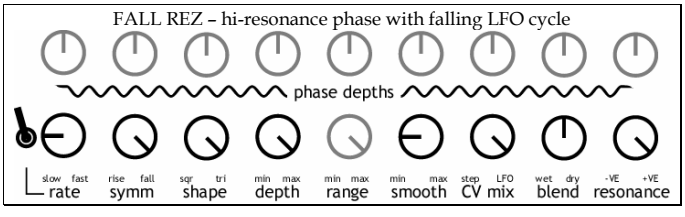
CLASSIC - traditional smooth sweep phasing : adjust rate, resonance and blend to determine final sound quality



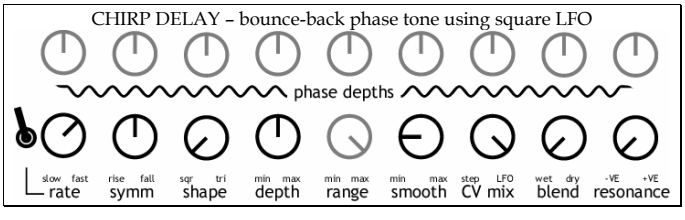
COOL VIBE - shimmering vibrato: depth controls strength of pitch bend



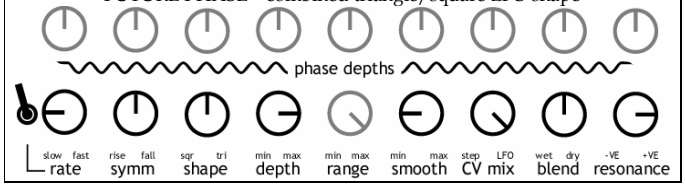
FALL REZ – hi-resonance phase with falling LFO cycle



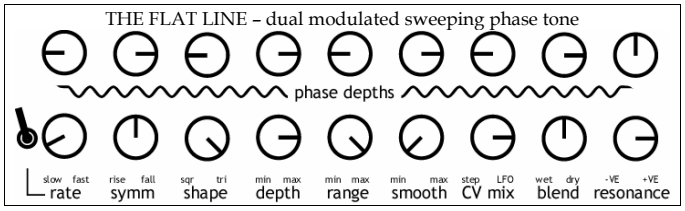
CHIRP DELAY – bounce-back phase tone using square LFO



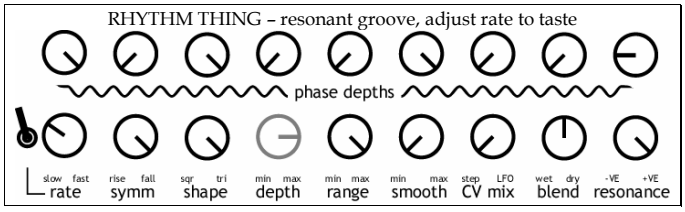
FUTURE PHASE – combined triangle/square LFO shape



THE FLAT LINE – dual modulated sweeping phase tone



RHYTHM THING – resonant groove, adjust rate to taste



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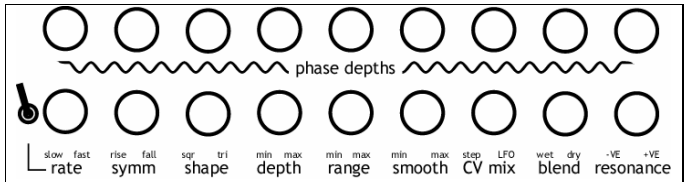

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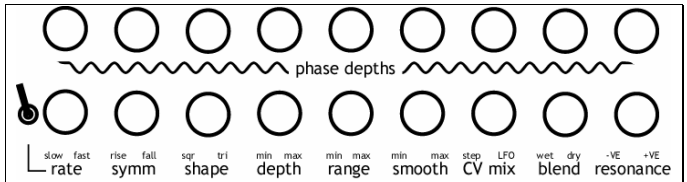

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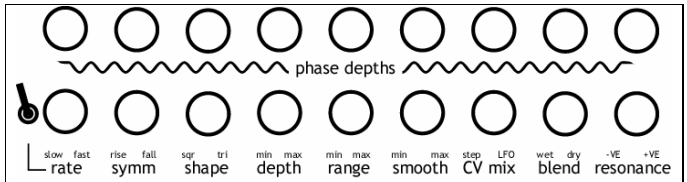

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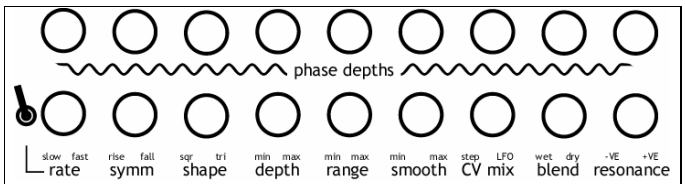

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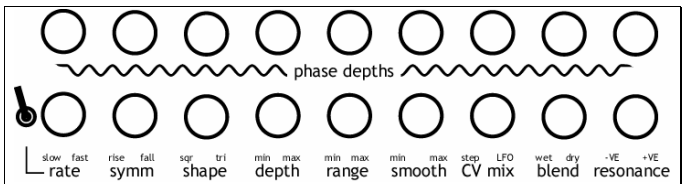

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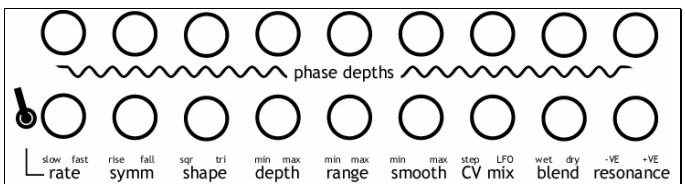

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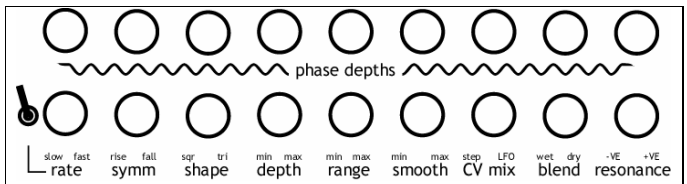

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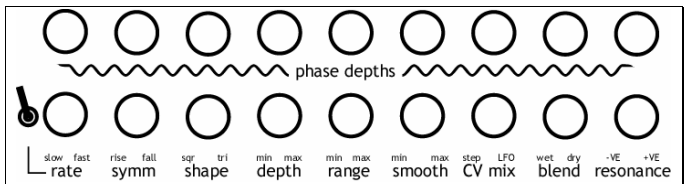

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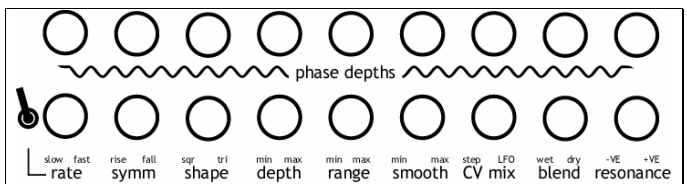

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