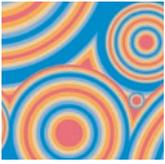


# PHASEMIS+RESS™

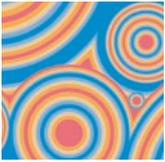
Analog Phase Shifter

 **soundtoys™**



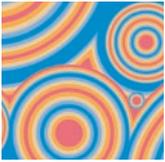
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## **T H A N K S !**

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First off we'd like to give you a loud THANK YOU for purchasing PhaseMistress! We know there are an awful lot of plug-ins for you to choose from and we are truly grateful that you have chosen to spend your hard earned scratch (old school for "cash") on our product. We take a lot of pride in our work and we sincerely hope that you find PhaseMistress inspirational and musically useful.

We'd also like to thank all the people that helped in the development of PhaseMistress and the whole new SoundToys line of plug-ins:

Nick Caiano for his super-cool demo sessions and guitar work.

Mikail Graham for letting us hijack his wonderful collection of guitar pedals (we'll return them soon - we promise!) and for all the help and feedback along the way.

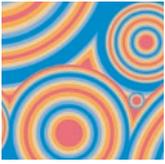
Wendy Letven for her amazing design work on the SoundToys logo, all the SoundToys packaging, and much more.

Andrew Schlesinger for all of his help from the very start of the SoundToys concept - from product names, design ideas, and presets, to his witty and useful contributions to this user guide and other sage advice.

Christy Gustafson for coming through with the 11th hour layout of this manual.

Our whole crew of beta testers for PhaseMistress, especially Arthur Alexander, BT, Jez Colin, Andy Gray, Fab, Lars Fox, Terry Fryer, Peter Freeman, Jon Goldstein, Rich Hilton, Michael James, Pete McCabe, Oliver Momm, Allan Speers, Morgan Page, Michael Costa, Andrew Souter, Willie Wilcox, Doc Wiley, and Richard Zvonar.

-- Ken, Bob, Jamey, Noah, and Mitch



## **I N T R O** (the one that comes before the sequel!)

### About PhaseMistress

PhaseMistress is the second in a series of totally cool new plug-ins to come out of the SoundToys (formally Wave Mechanics) plug-in development lab. As with FilterFreak, our Analog Filtering module, a truly ridiculous amount of programming time, head scratching, listening and tweaking has gone into the development and design of PhaseMistress in order to provide you with an incredibly creative, powerful, ground-breaking and truly analog-sounding phase shifter.

Special attention has been given to recreating a phase shifter that not only sounds and responds like a real analog phaser, but one that offers some totally new and unique features, twists and facilities to phase shifting. Yes folks, you can now fulfill your wildest analog phasing phantasies with PhaseMistress and we guarantee that it will do whatever you ask without any complaints!

Our heads are still spinning from all the work we put into this product, (and ALL SoundToys products) and we are really pleased with the way PhaseMistress works and sounds ...hopefully you will be as well!

### What and Who is SoundToys

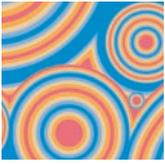
Ok, so what the heck is "SoundToys" anyway? SoundToys is a concept, a vision, a new line of totally cool, sonically superior audio FX plug-in devices designed to set a new standard in regards to plug in processing and sound. And, it's our new company name.

You see all of us at SoundToys (formerly Wave Mechanics) are a bunch of audio geeks that thirst for new ways to manipulate and mangle sound that are innovative, unique, and with sound quality that is in a class all its own.

While everyone and their grandmother is modeling older gear these days, we are busy wracking our collective brains to develop NEW devices that are truly inventive and will stand the test of time - the kind of things you'd take with you to a desert island...

Just so you know, we are the guys that were responsible for designing such ground-breaking and industry standard products as the Eventide® H-3000, DSP-4000, the Wave Mechanics UltraTools line of plug-ins for Pro Tools TDM. Our DSP algorithms can even be found in such high-end studio gear as the TC Electronics Fireworx, G-Force, and G-Major processors, and more.

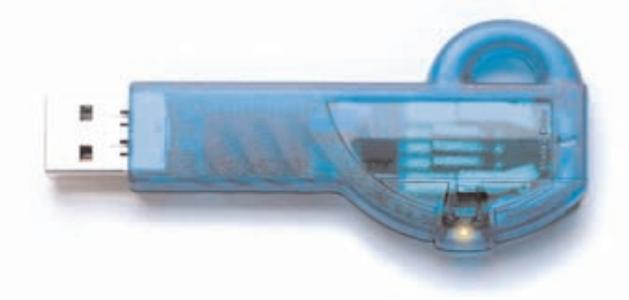
Our approach in developing the SoundToys series of Pro Tools plug-ins is to create a series of dedicated processors that provide the absolute best possible sound quality, flexibility and creative sound manipulation in the wonderful world of digital, but that also possess that truly analog character and vibe.



## GETTING STARTED

### System Requirements

PhaseMistress is software plug-in for the Digidesign ProTools system. You'll need to have at least one decent Macintosh computer (G3 or better. Fastest is bestest) running OS 9.2 or later and of course you'll need a copy of Pro Tools version 5.0 or later. To use PhaseMistress you'll also need one of those little "iLok" hardware keys, - it's a small blue plastic key that looks like this:



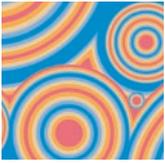
If you don't have an iLok we'll be happy to sell you one at a modest price or you can purchase one from Digidesign or your favorite ProTools dealer.

### Installing PhaseMistress

Installing PhaseMistress is really pretty easy. First, make sure that you have your iLok hardware key connected to your computer, and that you have the PhaseMistress license card handy. Once you're ready, simply pop the PhaseMistress CD into your computer's CD-ROM drive and when the CD icon appears on your screen double-click the PhaseMistress installer program to start the process.

Follow any instructions included in the installer and at the end of the installation process you will be prompted to 'authorize' PhaseMistress. To do this, carefully detach the license chip from the license card, and insert the chip into the slot in the rear of your iLok when prompted to do so by the installation program.

Once installed, a copy of the PhaseMistress™ plug-in will be located in your Digidesign plug-ins folder along with a cool set of PhaseMistress presets. Finally, a SoundToys folder will be created in your Applications folder. Please note that if you already have FilterFreak, our totally cool analog filter box this folder will already be on your hard drive and PhaseMistress will be placed there. The SoundToys folder contains this manual, as well as other useful documentation and tools that you can read or ignore depending on your level of patience or interest in reading babbling things...like this manual.



## Registration

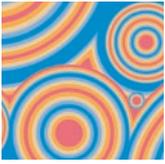
Please register your product by going to <http://www.soundtoys.com/register>

If you choose not to register your product during the PhaseMistress installation, please take a moment to register PhaseMistress by going to <http://www.soundtoys.com/register>.

We also strongly recommend that you go to <http://www.iLok.com>, set up an iLok.com account, and register your PhaseMistress authorization.

So, why should you bother with all this tedious registration stuff? When the day comes that your pet boa constrictor swallows your iLok in the middle of a recording session, and you NEED to use PhaseMistress, we will be able to get you up and running again MUCH MORE QUICKLY.

If you haven't taken the time to do this, we will still try to help you, but we'll have no easy way of knowing whether you are really you, or some bozo who swiped your copy of PhaseMistress when you weren't looking.



## USING PHASEMISTRESS

### What's a Phase Shifter? (For those in the know you can skip this section)

The original Phase-Shifter effect was an attempt at electronically recreating analog tape flanging - (an effect created by mixing the output of two analog tape machines playing the same track, only slightly out of sync) using integrated circuits. Early effects designers attempted to model the 'out of sync' part of the flanging effect by using something called an analog phase shift circuit. The result wasn't exactly tape flanging (as real flanging requires a short modulated delay), but the resulting effect though different sounded tres' cool, especially on guitar. Enter Jim Hendrix, the Univox "Univibe"® and the rest as they say is history.

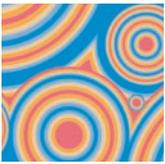
A phaser or phase shift effect is created by altering the phase of the audio, (kinda like delay, but varying with frequency) and mixing this phase-shifted sound back in with the original signal. The resulting phase cancellation produces a wonderfully musical sounding set of "notches" at musically related frequencies in the original sound. By sweeping, or modulating the phase-shifted signal, the notch frequencies are moved up and down the frequency spectrum thus creating that classic swooshy and swirly phase-shift sound.

Analog phasers can have different numbers of phase shift 'stages' in their design, producing more or less phase shift through the circuit. As you add stages to the phase shift "circuit" (resulting in more notches), the overall "strength" of the phase shift effect increases and becomes more prominent. In addition, the number of stages significantly affects the overall tonal character of the phased sound. A 2-stage phaser will be very "washy" and wet (think Hendrix "Machine Gun", Robin Trower's "Bridge of Sighs" and the opening guitar on Dark Side of the Moon's "Breath"). The totally cool phased drum sound on Led Zeppelin's "Kashmir" from Physical Graffiti was created with a 4 stage phaser that provided a much more pronounced effect. So it kind of stands to reason that 6, 8, 10 and 12 stage phasers each sound progressively more pronounced.

One thing you might also notice that these are all even numbers. Using an odd number of stages sounds totally different than an even number of stages and for some reason (at least until now) virtually all phasers stuck to only even numbers.

PhaseMistress on the other hand allows you to pick any number of stages between 2 and 24 including all odd numbers. This expands the tonal palate exponentially allowing you to make an even number of even or odd sounds, an odd number of odd or even sounds as well as making really odd sounding even phasers...and so on and so forth.

Some of the most popular phasers over the years have include the old Univox Univibe, MXR Phase 90, Electro-Harmonix Small-Stone, Eventide Instant Phaser and the Mutron Bi-Phase which had two distinct phasers in one box. These phasers and the phasing effect in general have been used by literally hundreds of artists and on



thousands of albums. It remains one of the most musically pleasing and cool effects available to this day. Of course, PhaseMistress takes this effect to a completely new level offering an unprecedented variety of phasing effects with the highest possible quality.

## Basics

**Note:** Since you would probably not be reading this unless you own a Pro Tools system we kind of take it for granted that you have at LEAST a basic working knowledge of your computer and of Pro Tools. If you don't, we strongly suggest you make yourself a strong cup of coffee (or two), get a comfortable chair and familiarize yourself with the ins and outs of your ProTools system before delving too much further into PhaseMistress. Digidesign is really nice and provides lots of manuals for your reading pleasure!

## Knobs



You can use a mouse to control all of the knobs in PhaseMistress and they all work in the same way: To turn a knob up, (to the right, clockwise etc), click on the knob with your mouse and drag the cursor to the right or slide the cursor up (towards the ceiling). To turn a knob down, (to the left, counter-clockwise), click on the knob with the mouse and drag the cursor to the left or down (towards the floor). "Mousing" around in a circle doesn't really work; you'll just get frustrated and or dizzy, neither of which is a lot of fun.

### Jumping to a Value using Text Markings

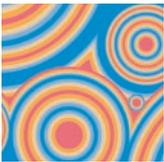
Some knobs have text markings showing minimum, maximum, or other values. Clicking on one of these text markings will automatically move the knob directly to that value.

### Returning a Knob to its Default Value

To return to the knob's "default value", simply hold down the option key and click on the knob. This will automatically move the knob back to its default value.

### Viewing a Knob's Exact Value

To view the exact numerical value of a knob simply hold down the control key and click on the knob. To see the knob's title, hold down control and click on the knob a second time.



### Adjusting a Knob with Fine Control

To get finer control over knob values, hold down the apple \_ key while dragging the mouse.

## Toggle Switches



In an effort to provide the feeling of real analog gear our toggle switches "switch" when clicked. To change the "state" of a toggle switch (like the analog/digital control), simply click on the switch - it will change from where it was to the "other" setting. Click again to change it back. Really simple!

## LED Displays



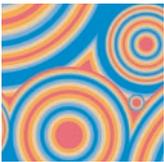
LED displays on PhaseMistress work in a couple of ways:

### Nudge Buttons

Most text readouts also include a pair of nudge buttons next to the display. Clicking on the upper button will increase the value by one and clicking once on lower button will decrease the value by one. This is useful for tweaking a value by small steps.

### Numerical Readouts & Entering Values from the Keyboard

For numerical readouts, (like BPM), you can enter exact values right from your computer keyboard. Clicking on the LED display highlights the field and makes it "live". Once highlighted, you can enter a new value via the computer keyboard. Press, "Return" to submit the value and deselect the field. You can also click & drag the cursor to change the value. Simply click on the value and drag the cursor up to increase the value or down to decrease the value, similar to using a knob control. Press, "Return" to submit the new value and deselect the field.



## Pop-Up Menus & Changing Values:



For most text-based readouts (meaning things that aren't a number), like LFO WaveShape etc, clicking on the readout with the mouse will display a popup menu. To change a value in the popup, hold down the mouse button and drag to select the desired value and let go. The selected entry will show up in the field, or a new pop-up window may appear depending on what you have selected.

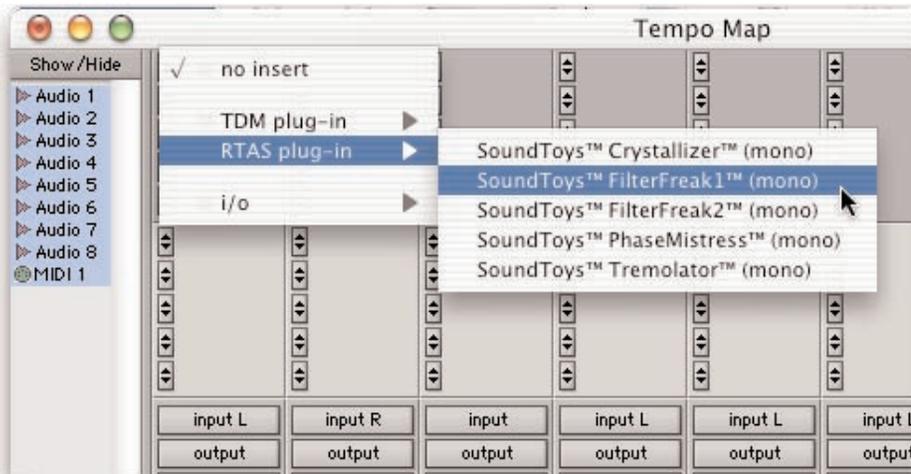
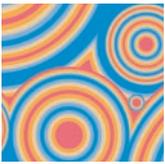
## Accessing PhaseMistress

Now that you know how to use knobs and pop-up menus, it's time to actually use PhaseMistress within Pro Tools. PhaseMistress is available to process your audio in two different ways: Real-Time, or Non Real-time.

### Real Time Processing (RTAS or HTDM)

As a real-time plug-in, PhaseMistress works a lot like a real hardware phaser. Whatever sound goes into PhaseMistress, comes out filtered, and you can hear it as it is happening (in real time!). Keep in mind that using PhaseMistress in this manner always chews up some CPU processing power.

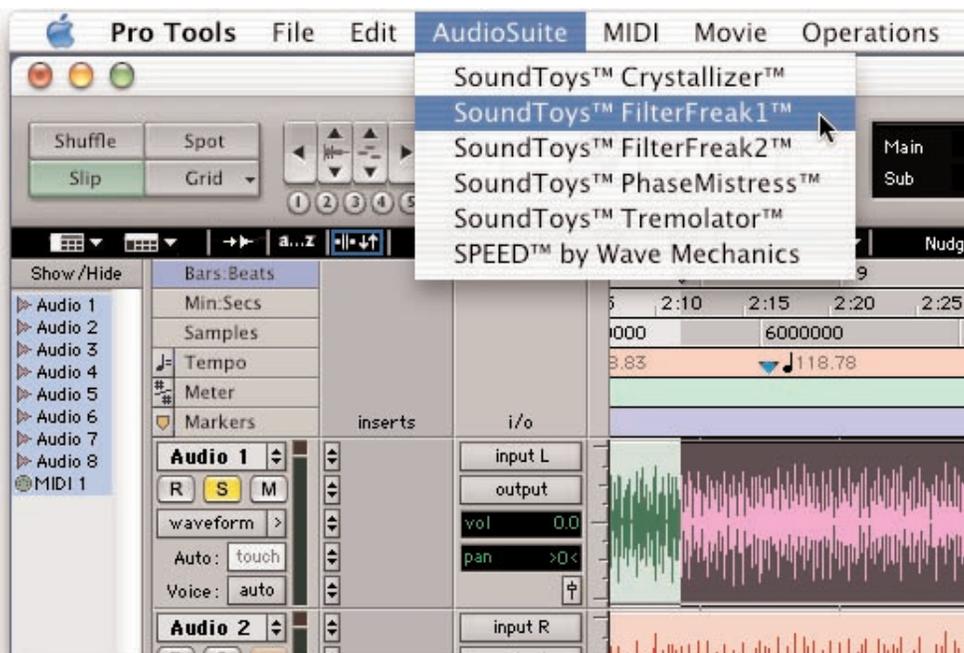
To use PhaseMistress in this way, you must first select PhaseMistress as one of the insert devices within ProTools, by clicking on the inserts button on a track. You can do this either from the edit or mix window in Pro Tools. From the inserts pop up, select PhaseMistress: (one and two-band versions of PhaseMistress) as shown in the next graphic...



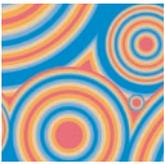
You can insert as many versions of PhaseMistress as you'd like, just keep in mind that each one gobbles up certain amount of CPU cycles and can make your computer start to sweat in terms of what's left over for other tasks.

#### Non-Real Time Processing (AudioSuite)

If you want to save computer power, PhaseMistress can also be used to process a specific region of audio destructively. This is done in ProTools using the AudioSuite version of PhaseMistress. To do this, first select the region of audio you'd like to process from the Edit window of Pro Tools. Then choose PhaseMistress from the AudioSuite menu of ProTools.

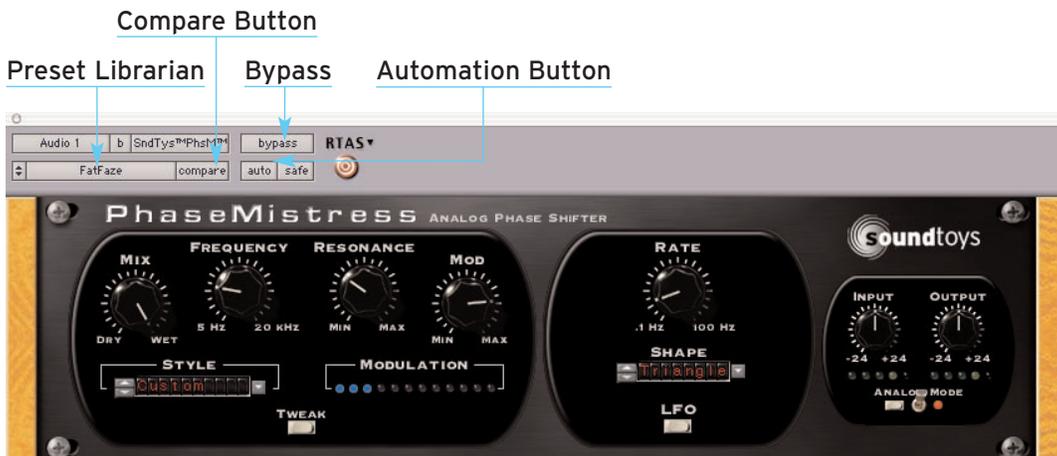


Hit the process button to process the selected region with PhaseMistress and to write the result back to disk. To hear the effect before committing to disk, click on the preview button.



## Using PhaseMistress Within ProTools

PhaseMistress is designed to be very integrated with Pro Tools, supporting all of the 'standard' Pro Tools plug-in features and controls including parameter automation, MIDI control, etc. Access to these functions can be found in the gray bar that Pro Tools attaches to the top of PhaseMistress. The display below shows the real-time version of PhaseMistress. When using the AudioSuite version, an additional gray bar will appear on the bottom with buttons to control previewing and processing.



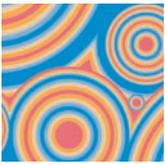
## The PhaseMistress Preset Library

For your immediate listening pleasure and for those who just can't wait, we've included a bunch (hundreds really) of carefully crafted, creative, cool presets with PhaseMistress. You might want to check these out as they not only provide a good example of the various types of effects that can be achieved with PhaseMistress, but one of them just might be the ticket you need for your latest hit record or production. They also provide a great starting point for you to tweak and mangle to your hearts content. Besides, we spent a whole bunch of time making them so you might as well give them a spin.

### Loading a Preset:

To view and load a PhaseMistress preset, simply click on the 'Settings Librarian' button located in the standard ProTools plug-in controls area, located at the top of the plug-in window...located in Pro tools, located on your computer, located in your...oops,





sorry! And as you would expect, for more info on the Pro Tools 'Settings Librarian', please read the Pro Tools manual, etc.

### Saving a Preset

Saving a preset is just as simple. Click on the small button to the left of the preset name and choose 'Save' to update the current preset, or 'Save As' to create a new preset.

### Compare Button

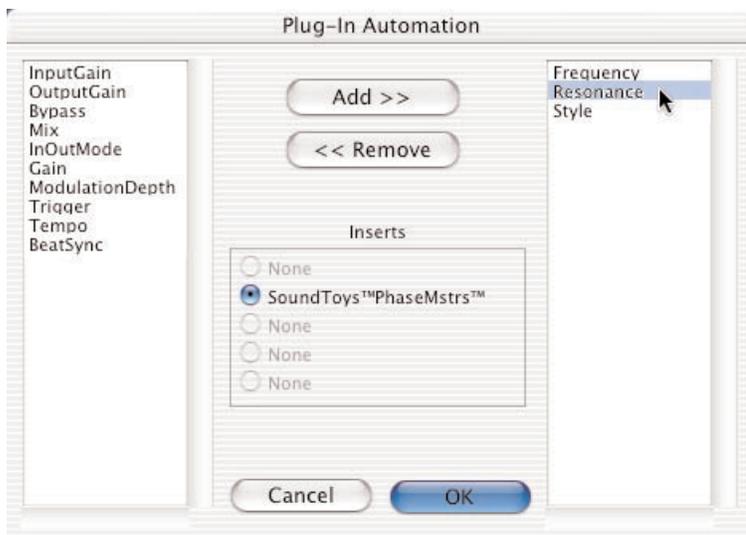
The compare button (often called the compare 'light' by Pro Tools pros) is a great way to audition the effect of any changes you've made to one of the PhaseMistress presets. As soon as you change any parameter in PhaseMistress, the compare light will come on. Click on the compare light to toggle between the original preset and your current changes.

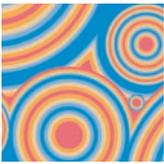
### Bypass

One of the more useful features on any plug-in is the Bypass button. Click on this to bypass the effect of PhaseMistress. This also recovers any CPU cycles being used by PhaseMistress.

### Using Parameter Automation

Many of the controls in PhaseMistress can be automated. Click on the 'auto' button to bring up the Plug-In Automation window. At the left is a list of parameter available for automation. On the right are any of the parameters that are currently automated. Select whichever parameter or parameters you'd like to automate then click on the 'Add' button. Those parameters will appear on the right side of the window, and can now be automated from within Pro Tools.

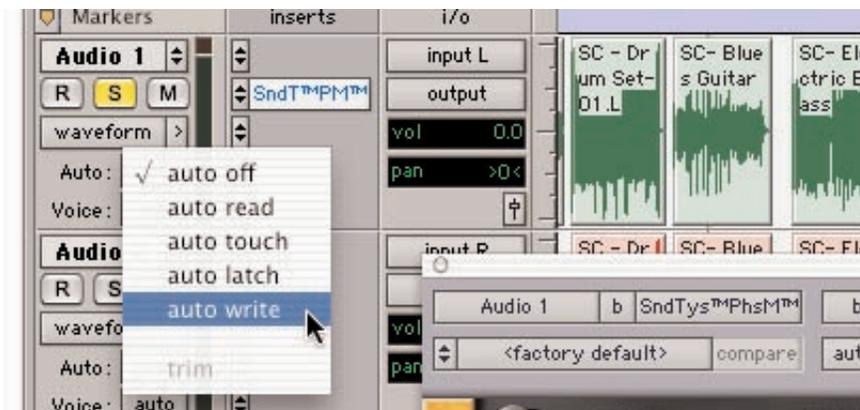




To record automation data, you'll first need to do a few things within ProTools. First, bring up the Pro Tools automation window (see Pro Tools Manual for enabling automation) and make sure 'plug-in' is enabled.

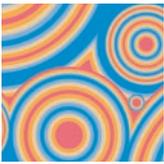


Next, in the track you're working on, select 'auto-write' to enable the real-time recording of automation data.

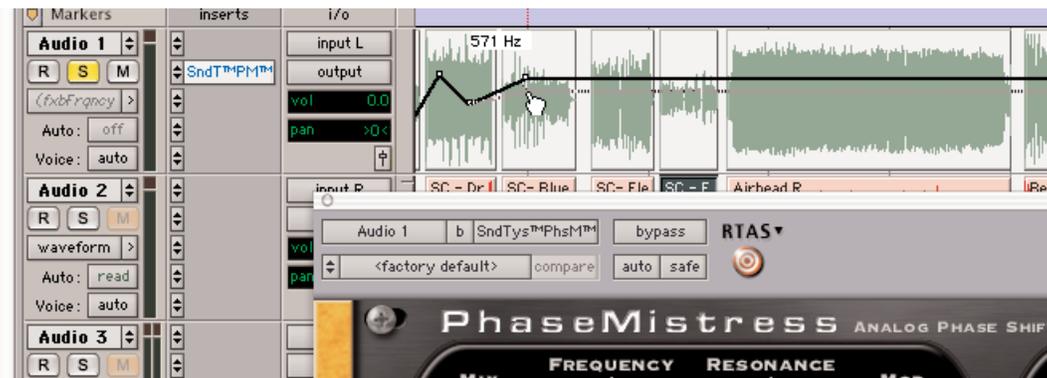


Now, press play and fiddle with the PhaseMistress controls. Pro Tools should now record any control changes you make. When the transport is stopped, the automation will automatically switch to 'auto-touch'. Please Note: In auto-touch mode, the automation data you've just recorded will be played back, and any new control changes you make will be written over the older automation data. To prevent these new control changes from being recorded, change the automation mode to 'read'. To turn off all automation on this track, set the mode to 'off'.

It would be really cool to edit these control changes, wouldn't it? Pro Tools has got you covered. From the edit window, click on the waveform button and slide the mouse over until you see PhaseMistress and its automated parameters. Choose whichever parameter you'd like to edit (it would be nice to see all parameters at once, but for now you've got to work on one at a time.)

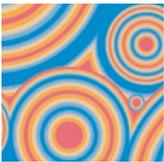


Now you'll see the automation control superimposed on the audio waveform. From this you can click and drag to your hearts content, creating all sorts of wild and crazy effects!



## Locking PhaseMistress to Tempo and Down Beat (or How to Give PhaseMistress a Real Beating)

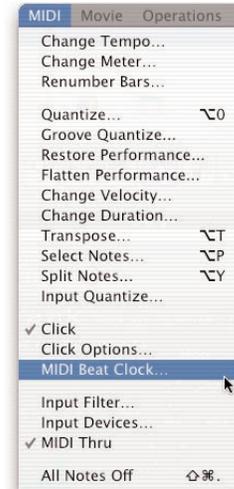
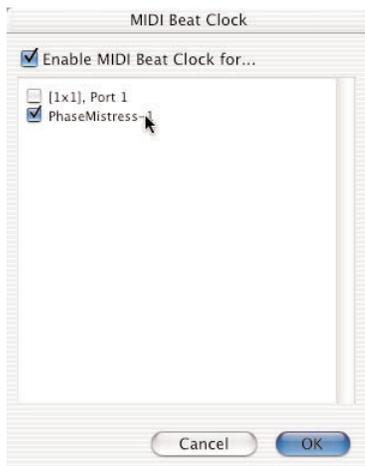
One of the coolest features of PhaseMistress is its ability to synchronize its sweep to the tempo (BPM) and downbeat (the '1' of 1, 2, 3, and 4) in your music. This is a totally awesome way to make PhaseMistress hip-hop and groove along with your tunes.



## How to Get PhaseMistress to Sync

PhaseMistress uses MIDI clock to synchronize its LFO with your music. To sync PhaseMistress to your tune...

1. Select 'MIDI Beat Clock' from the ProTools MIDI menu.
2. From the dialog box, make sure 'enable MIDI Beat Clock for...' is checked and that PhaseMistress (and any other SoundToys plug-in) are also checked. You will need to repeat this step every time you insert a new PhaseMistress plug-in.

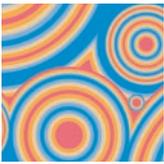


3. Select 'OK' to lock to the ProTools tempo and beat clock.
4. But WAIT! There are still a few things to note before this will all work. New Pro Tools sessions always set the default tempo to 120 BPM, and the downbeat will start at the beginning of the session. In order for tempo locking to be useful, the downbeats and tempo of your music needs to line up with the downbeats and tempo in your Pro Tools session. If you've recorded everything to a click track within Pro Tools, everything should be cool. If not, you'll need to enable the conductor track within ProTools and create a tempo map for your song.

## Creating a Tempo Map



1. Enable the conductor track by clicking on the conductor button in the transport window of Pro Tools. If you don't see the conductor button on the transport window, Select Display->Transport Window Shows from the Pro Tools menu. Make sure MIDI and "Expanded" are both checked.
2. Create a tempo map by defining bar | beat markers in your song. A simple way to do this is to select the first measure of your song (very precisely) in the Edit window, and then use the Identify Beat command in ProTools (\_ I) to define the starting and ending beat numbers for the selection. ProTools will then calculate



the correct tempo based on this. If the tempo of your music varies (which it probably does if it wasn't recorded to a click), then you may need to repeat this procedure at various points in your song to keep the beat locations lined up correctly.



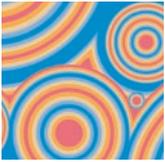
Hint: It is very, very useful to use a drum track along with the tab to transient feature within Pro Tools to help with this. If you're a Pro Tools TDM user, you may also want to learn about Beat Detective, which can help to automate this potentially tedious process.

More Info: All of this and more are covered in great detail in the Pro Tools manual. For info about tempo maps and conductor tracks look at Chapter 21 of the ProTools 6 reference guide. For info about Beat Detective see Chapter 22, and for info about the extremely useful tab to transients feature read Chapter 16, Playing and Selecting Audio.

## Using the HTDM version of PhaseMistress

If you are a Pro Tools TDM user, PhaseMistress is also available as an HTDM plug-in, and will appear in the TDM inserts menu of ProTools. The HTDM version is available because RTAS plug-ins cannot be used on aux tracks and cannot have real-time monitoring when used within Pro Tools TDM systems.

The HTDM format allows native plug-ins like PhaseMistress to be used just like TDM plug-ins (except that the host CPU is used for processing instead of the DSP chips on the DSP farm cards). One very big caveat here is that the HTDM format causes significant latency (or delay) in the audio stream.



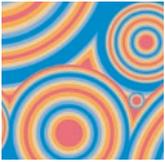
**IMPORTANT:** Digidesign has a special low-latency version of the “StreamManager” driver for ProTools. This can reduce the latency from 1024 audio samples to 256 audio samples - (from 21 milliseconds to 5 milliseconds at 48 kHz sample rate!) For the latest and greatest info on optimizing HTDM for your system and to download the low latency StreamManager, please visit the HTDM Q&A page on the Digidesign website. The link to it is:

<http://www.digidesign.com/support/faq/htdm.html>

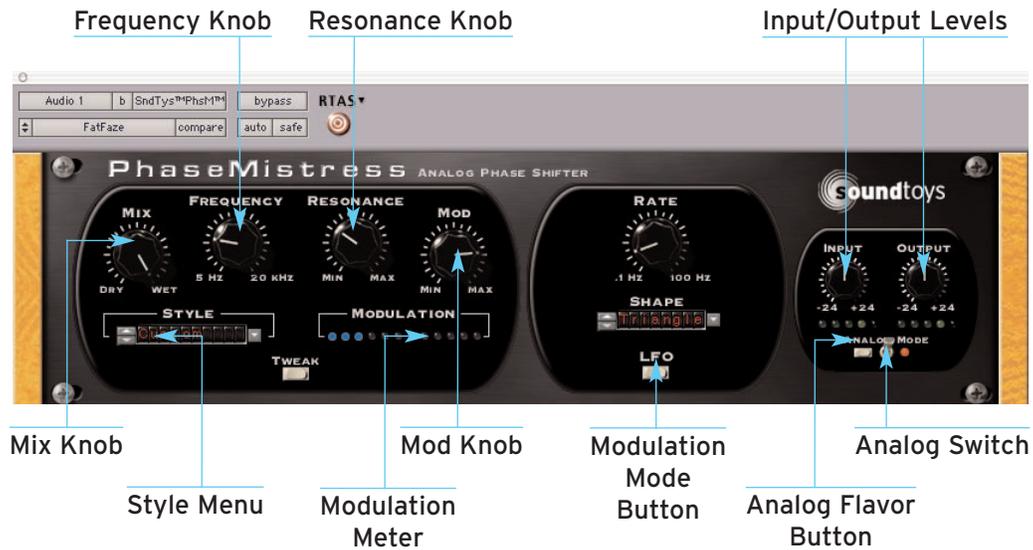
## Optimizing CPU Usage

PhaseMistress is a native plug-in, which means that it uses your computer’s processor to do its audio processing. Because of its advanced DSP algorithms, PhaseMistress can put a pretty heavy load on your processor. Here are some tips to reduce the processing:

- Use Digital mode instead of Analog: This uses about half the CPU power.
- If you’re running multiple tracks through the same effect, use PhaseMistress on an aux track and use sends to route the audio through PhaseMistress.
- Commit your effect to disk by using AudioSuite, or, by bouncing to disk



# PHASEMISTRESS CONTROL PANEL



## Analog Mode Switch (Distortion / Overload Characteristics)

The analog mode toggle switch and flavor button allow you to choose how PhaseMistress will distort or "saturate" as the signal input increases, which is more noticeable at high signal levels.

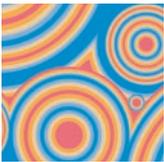
### Analog Mode

In 'analog' mode, PhaseMistress will saturate in the nice, warm and friendly manner similar to the way real analog gear responds. The analog setting adds a certain amount of distortion at all signal levels. The Analog setting sounds really good but keep in mind the "Analog" setting eats up significantly more DSP resources. Sorry, no free DSP lunch here!

### Digital Mode

When the analog mode switch is off, PhaseMistress is in 'digital' mode. In this mode, higher signal levels will clip in the typically nasty, crunchy digital way. This too can be desirable depending on what effect you're trying to achieve. Lower level sounds are left pretty much unchanged and sound spic-n-span clean. Also note that the digital setting uses significantly less DSP horsepower than the analog setting. (What are horses doing in my computer anyway?)

Needless to say you should experiment with both settings using various types of source material and cranking the input levels up and down to hear what it all sounds like. A fun and educational exercise!



## Analog Flavor

The analog flavor control is used to adjust how the input and output behaves (or doesn't behave) when it is overdriven. To access this control, click on the small button to the left of the Analog switch to see the analog flavor pop-up menu. For best results, experiment with different sources when tweaking this control:

- Clean: Maximum non-distorted range, with fairly hard clipping
- Fat: Smooth low-frequency distortion
- Squash: Similar to above but more compressed
- Dirt: Smooth broadband saturation
- Crunch: Exaggerated high-end clipping
- Shred: Lots of asymmetrical clipping
- Pump: Extreme pumping compression

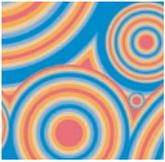
## Input and Output Level

The Input and Output level controls are used to (you guessed it) boost or attenuate either the input or output of PhaseMistress. The default setting of the controls approximates "unity gain" (what goes in comes out the same level) and should provide the best overall "normal" sound quality when set to these levels. The LEDs beneath the Input and Output knobs provide visual display of the input and output signal levels. The yellow LED indicates that the signal is 6dB below clipping. The red LED indicates maximum signal level, and possible clipping which may or may not sound so good depending on the switch setting and what your ears like to hear.

These controls are particularly useful in the Analog mode, allowing you to control the amount of saturation and distortion in PhaseMistress. You can crank either the Input or the Output to create distortion and cranking both to extreme levels can really futz with your sound.

Distortion combined with phasing can be lots of fun. If you saturate the input stage (by turning up the Input level), the distortion and harmonics added by the saturation will be filtered by the PhaseMistress phase effect. If you saturate the output stage by turning up the Output level, the signal will be phased first and the distortion and harmonics will be added post-phasing.

These can sound quite different and there are a lot of variations available using both input and output saturation at different levels. (Keep in mind that the greater the harmonic content the more pronounced the phasing effect will be so overloading the input will increase the presence and appearance of the phasing effect. Conversely, most guitarists plug into a phaser before going into their distortion but in this case the subtleties of the phasing effect will be less pronounced as it is distorted.



It's important to note that the input and output level only affects the phased signal and leaves the dry signal unchanged. This approach may be slightly different than that of some other plug-ins and we found this implementation to work best for PhaseMistress.

## Mix

The Mix control is used to set the balance between the phased sound created by PhaseMistress (and Input / Output control settings)...and the dry signal. Phasing sounds best when you mix a percentage of dry and phased signal together, usually 50% of each. The Mix control provides a convenient means of setting just the right balance between the dry and phased signals right in and on PhaseMistress.

So, if you're using PhaseMistress on an Aux Send / Return configuration, you may want to leave the mix at 100 % and use the fader on the return to control the amount of the effected sound. If you are using it "in-line" and sending the signal right through PhaseMistress you probably want to set the Mix knob at 50% or less depending on the type of phased effect being used. Keep in mind that PhaseMistress can create a wide variety of sounds from extremely subtle to super pronounced.

The amount of dry to effect signal is very important based on the type of phasing effect being used, how pronounced you want the effect to be and how you want the sounds to sit in your mix. As with most things in the world of audio there is no right and wrong; let your conscience be your guide, oh, wait a minute, that's a different movie...we mean let your EARS be your guide. That's the ticket!

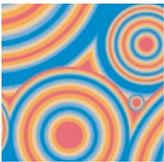
Tip: Because of the stuff mentioned above it might be preferable to use PhaseMistress as a channel insert and use the Mix knob to determine the mix between the dry and filtered sound. But then again, it may not.

## Frequency

The frequency knob on PhaseMistress allows you to set the "center" frequency of the phase notches. It determines the point along the frequency spectrum that the phaser effect will be "centered" (also referred to the "initial" setting"). There are a few things that will often affect where you might want to set the Frequency...

- The type of input signal or instrument to be effected, i.e. bright, bass, midrange etc
- The type of phasing effect being used, i.e. soft and thin with little resonance (we'll get to that) or deep, wide and resonant.
- The "type" and "depth" of the modulation being used to sweep the phaser

To hear how changing the Frequency affects the sound, turn the "Mod" knob (discussed shortly) all the way down and manually yank the Frequency knob from the



lowest to highest setting. You will hear the standard "phaser" effect across the full frequency spectrum. However, it is pretty common to set the Frequency knob to a specific setting somewhere midway between the lowest and highest setting and then add modulation with an LFO or envelope to modulate the frequency.

So to get your standard phasing effect set the Frequency knob at 12 o'clock and then add some modulation with the "Mod" knob (set it to 11 o'clock) and the Rate set fairly low, (say around 7 o'clock). You can then move the Frequency knob to "tune" or bias the phasing effect more towards higher frequencies by turning it up, or more towards the bass by turning it down. As we said before, there ain't no right nor wrong way; it just depends on what kind of effect you want.

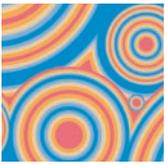
Of course most of the really cool effects available with PhaseMistress happen by either clicking on the Frequency knob, yanking it around and recording the changes with Pro Tools automation, or, more likely using the PhaseMistress's extensive built-in modulation section (Discussed in the Modulation Section) to automatically modulate the phase effect in a multitude of different and bizarre ways.

## Resonance

The Resonance control greatly enhances the effect of the phase shift effect by creating "resonant peaks" in each of the notch filters, "boosting" and "enhancing" the harmonics contained in the input signal that fall around each of notches. As you increase the Resonance and sweep the frequency the harmonics that fall into and around the various notches are exaggerated, "picked out" and become more pronounced. This significantly enhances the phasing effect giving it a much sharper, "churning" quality. Cranking the Resonance all the way up will drive PhaseMistress into oscillation and can actually obscure the input signal as the filters in the phase effect are actually creating a signal on their own.

It is also important to note that the number of stages and the phase (positive/negative) of the resonance (located under the Tweak menu and discussed shortly) will significantly affect the character and overall tonal quality of the resonance and greatly increases the variety of phasing effects available in PhaseMistress.

**A Word of CAUTION!** - Extreme settings of the Resonance controls can create VERY high signal levels...enough to fry your tweeters and blow out your woofers if the volume is way up. You may want to turn down the output level of PhaseMistress when cranking up the Resonance. We cannot be responsible for any damage done due to being dopey enough to listen REALLY loud while cranking the Resonance! So please...be cool and careful.



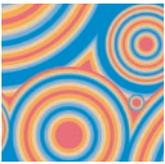
## Mod

The "Mod" control determines the amount of modulation signal that will be used to sweep the phaser Frequency. Increasing the Mod will increase the amount of modulation and determine the mod (how far) the frequency will be swept either above and/or below the center frequency. The amount of Mod used will often be dependent on where the Frequency knob is set as well as the type of modulation signal being used. Usually the faster the modulation the less Mod you will want to use as phase shifting can create a "vibrato-like" effect and make the signal sounds out of tune. Please Note: The Mod knob on the front panel is directly linked to the Freq Mod parameter located under the "Tweak" button. The total available modulation depth as well as the direction of the modulation is set by the Freq Mod parameter in the Tweak menu (based on having the Mod knob full up). The front panel Mod knob allows you to "scale" the amount of available modulation based on the Freq Mod setting. This will all be covered in detail when we discuss the Tweak menu features but we thought it would be worth mentioning now.

## Rate, Shape and LFO



The Rate knob allows you to alter the speed or rate of the modulation signal via the front panel and the setting of this knob is saved within a standard PhaseMistress preset. However, the Modulation section within PhaseMistress is REALLY powerful and there is a whole world of modulation possibilities that are waiting to be accessed and abused. These are covered in detail in the section called "Choosing a Modulation Type and Source" on page 32. But for now just note that the Rate knob sets the speed of the modulation.



## Style Menu

The "Style" menu gives you access to dozens of different virtual phasing 'circuits' with a click of the mouse. Each style setting has a completely different tonal shape and can be used to quickly change the overall sound and character of PhaseMistress, while still preserving the modulation, frequency, resonance, etc. (This is like switching between a Maestro Phaser, an MXR Phase 90, Mutron Phaser etc.)

The style menu includes a bunch of "classic" Styles that you would find in "real" phasers as well as many Styles that are totally new and unique to PhaseMistress. You can even create your own phaser Style by clicking on the "Tweak" button and editing the "Style Tweak" parameters.

## Auditioning Styles

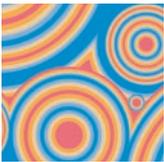
The best way to hear what the Styles sound like is to set the front panel settings to some "default" settings and then step through the various Style settings. You will hear the overall sound of the phased effect change as you step through the various Styles. In regards to the names we used, they are often descriptive of the Style Tweak parameter settings used to create the Style or were simply made up to describe what we thought the effect sounded like. In any event, here are the front panel parameter settings you should use to best audition the Style settings...

- Mix = 50% or 100% depending on where you have PhaseMistress inserted.
- Frequency = 12 O'clock
- Resonance = 9 o'clock
- Depth = 12 o'clock
- Select the standard PhaseMistress preset call "STYLE AUDITION" (this will insure that the Tweak Menu settings, described in a bit, are set to "default" values)

## Tweak Button

Pressing the Tweak button will open the Tweak menu screen providing access to a new set of parameters that provide the ability to really get at the fundamental "guts" of PhaseMistress' virtual phasing circuit.

In fact let's get this out of the way right now: The parameters available in the Style Tweak menu are unprecedented and together with the Modulation Tweak menu and the variations available in the Modulation section makes PhaseMistress the most flexible and sonically vast phase shifter made to date. At least that's what we think...hopefully you will agree! So we won't keep singing our own praises and telling you how this feature or that feature open up new territories in phasing...let's just take it for granted that by now this should be pretty clear.



This Tweak screen is separated into two sections: "Style Tweak" and "Modulation Tweak".

## Style Tweak

The Style Tweak parameters are used to create the basic character and "structure" of the virtual phasing circuit. These are also the parameters used to create the Style settings. Once you open the Tweak menu you can actually see how each of the Style settings were created by selecting one of the Style settings in the menu and looking at the settings of the knobs and switches in the Style Tweak section.

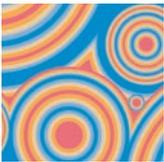
You can create your own "Styles" just by tweaking any or all of these parameters. Once you change any of the parameters in the Style Tweak section the Style menu will read "Custom", indicating (duh) that you have changed one or more of the Style Tweak parameters.

Please Note #1: Our original intention was to NOT expose these "secret ingredients" at the user level and to only have the Style settings that we deemed useful and useable etc. However, once all the infighting, screaming and bloodshed subsided inside the SoundToys lab (it was not a pretty sight!) the powers of good prevailed over the powers of evil and it was decided by the wise SoundToys Elder Council to provide you, our esteemed user, with the power to control the phasing galaxy by exposing these parameters to you.

Please Note #2: Only the parameters under the Style Tweak area of the menu were used to create the Style settings. The Modulation Tweak parameters are separate and are saved when saving a standard PhaseMistress preset.

## Stages

The "Stage" knob is one of the most important parameters in PhaseMistress. As we discussed earlier, the number of stages determines the number of phase shift stages used in the virtual phasing circuit, with the available values in PhaseMistress ranging from 2 through 24. In general, the most significant changes in the sound occur between Stage settings 2 and 12 with 2, 4, 6, 8, 10 and 12 being the most commonly used. (Note: A 2 stage phaser is the least pronounced and "transparent" sounding and as a general rule sounds best with minimal resonance. This does not mean that you can't add resonance with a 2 Stage phaser but you will most likely find that it does not add that much. Once you get above a 2 Stage setting you'll find that resonance will become more useful and pronounced)



This Stage menu allows you to choose all odd and even numbered Stages, something not available on any other phaser anywhere. As a basic rule, odd number stages will impart some form of lowpass filtering into the signal and the character of odd stages sound very different from even stage settings. They don't sound better or worse, they just sound "different" and often very cool.

### Res Mode

The Res Mode (a totally new parameter not available elsewhere) determines that number of resonant peaks independently of the number of Stages. The Res Mode parameter has a significant affect on the overall character of the Resonance when the Resonance is turned up. Various mixtures of Stage settings and Res Mode settings will often impart really drastic changes in the overall tonal quality of the phase effect.

Setting the Res Mode to the lowest setting of "Norm" is the "standard" setting that you would find in most phasers and will automatically set the "normal" number of resonant peaks for the selected number of Stages. As you change the number of Stages the number of resonant peaks are automatically set. Setting the Res Style to a different number than the number of Stages allows you to create completely new and previously unavailable virtual phasing "circuits" and create a plethora (big word!) of truly unique phasing tones.

There is no "right" or "wrong" setting. You will for sure hear that there are a LOT of variations that can be achieved with different combinations of Stages and Res Style settings. Add to these the other switches located in the Style Tweak menu and you will soon find yourself navigating new and uncharted sonic phasing waters.

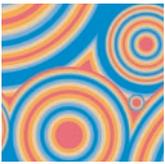
### Res Offset

The Res Offset menu tunes the frequency of resonant peaks relative to frequency of the notches. Decreasing the Res Offset (displays a negative "-"value) tunes the resonant peaks more towards the bass frequencies relative to the notch frequencies. Increasing the Res Offset tunes the resonant peaks more towards higher frequencies relative to the notch frequencies.

This is a totally new feature previously unavailable in any phase shifter to date. The audible affect of tweaking this menu will be fairly obvious as long as the Resonance is turned up a bit on the front panel. The setting of the Res Offset parameter is saved with a standard PhaseMistress preset. It's also worth noting that PhaseMistress provides the ability to modulate the Res Offset under the Modulation Tweak menu (discussed shortly).

### Res Phase

The Res Phase switch allows you to switch the polarity of the resonance either Positive (most common) or Negative. In general, a positive setting will provide more



bass in the effect where as a Negative setting will have less bass and sound thinner, but not in a bad way. The overall character of the phase effect will change rather drastically with a decent amount of resonance and significantly increases the types of sounds you can get with PhaseMistress.

### Notch Phase

The Notch Phase switch provides the same function as the Res Phase switch but affects the polarity of the notches. Again and as a general rule the Positive setting will yield stronger low end in the overall phase sound where as the Negative setting will yield less pronounced bass. Both sounds great and combined with the Res Phase switch greatly enhance the variety of potential "tones" available in PhaseMistress.

### Intensity

Simply put, the "High" setting gives you steeper (more intense and fatter) peaks and valleys in the phase signal where the "Normal" setting provides a more "standard" set of peaks and valleys. The "high" setting will make the phase effect significantly more pronounced at all Stage settings.

Please Note: The "High" setting chews up a lot of DSP power. As a general rule the High setting sounds best and is most useful when the number of stages is between 3 and 12. You can use with all Stage settings but you may start to see a pretty big CPU hit.

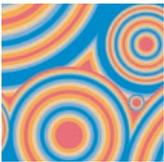
### Color

The Color also affects how the resonance interacts with the notches. The "Classic" setting provides the most common type of response where the notches get "weaker" as feedback or resonance is increased. The "Modern" setting preserves deep notches with all resonance settings. We could probably spend a whole lot of time trying to find the words to try and describe how this sounds, but as with most of the parameters just try them and listen. You can't hurt yourself or PhaseMistress...but PhaseMistress just might put a hurt on you but in a really good and pleasurable phasing way!

## Modulation Tweak Menu

The Modulation Tweak parameters allow you set both the modulation depth and direction for Frequency, Resonance and Res Offset. The L/R Offset knob and Polarity switch allow you to determine the type of stereo signal that will be created by PhaseMistress.

In most phasers the only parameter that gets modulated is the Frequency. PhaseMistress allows you to dynamically modulate the Resonance as well as the



Resonance Offset at the same time, each with a definable depth and definable direction (polarity).

**Please Note:** The Freq Mod parameter was set to a default setting of "8.00 Oct" when we created the various Style settings and should be set to this value if you wish to hear the Style settings "au natural". The Res Mod, Res Offset Mod and L/R Offset were all set to "0" (12 o'clock). However, in creating the full, standard PhaseMistress presets (as opposed to the Style settings) these parameters will likely be set all over the place. To accurately audition the Style settings set these controls as described above or simply select the "STYLE AUDITION" preset as previously described.

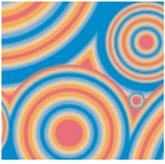
### Freq Mod

The Freq Mod determines both the direction of the modulation applied to the Frequency parameter as well as defining the maximum depth that can be applied when the front panel Depth knob is turned all the way up. The knob is center justified with the 12 o'clock position being "0" or no modulation. Turning the knob clockwise or inputting a positive number into the numerical field will add positive modulation. Turning the knob counter clockwise will also add modulation but in a negative direction. The available values are; "-10.00 Oct" to "10.00 Oct"

For example, a setting of "8.00 Oct" means that the modulation applied to the Frequency will modulate the frequency of the filters in a positive manner (based on the front panel Frequency knob's "center" setting) and that the maximum depth available when the Depth knob on the front panel is turned all the way up is "8" octaves. This was used as the "default" setting when we created the various "Mode" presets but may be set quite differently as you create "standard" PhaseMistress presets.

Conversely, if you set the Freq Mod to a negative setting of say "-5.00 Oct", the modulation applied to the Frequency will modulate the frequency in a negative manner with the maximum modulation available being minus (5) octaves with the front panel Depth knob turned all the way up.

Again, if you set the Freq Mod to "0" (12 o'clock) NO modulation will be applied to the Frequency regardless of the setting of the front panel Depth knob. So it is really important to note that the Freq Mod parameter is highly interactive with the front panel Frequency and Depth knobs!



### Freq Mod Polarity Switch

The modulation polarity switch located directly under the Freq Mod knob can be used to quickly "flip" the direction of the Frequency modulation. The "Normal" setting means that the direction of the modulation is in synch with the direction of the modulation signal; it will increase as the modulation signal is increasing. The "Reverse" setting switches (reverses) the direction of the modulation being applied at the amount set by the Freq Mod knob.

This is useful when you want to make quick changes in the direction of the modulation without changing the settings of the Freq Mod, Frequency and Depth controls.

### Res Mod

The Res Mod knob allows you to modulate the Resonance with whatever modulation source being employed in the preset (LFO, Envelope etc). The Res Mod knob is also "center justified" like the Freq Mod knob. When set at 12 o'clock no modulation is applied to the Resonance. Turning the knob clockwise or typing in a positive number will modulate and increase the Resonance. Turning the Res Mod value counter clockwise will modulate the Resonance in a negative direction and decrease Resonance.

It is important to keep in mind that the setting of the front panel Resonance knob defines the "default" starting point for the resonance modulation. Positive going modulation will increase the Resonance from the value set on the front panel knob where as negative modulation will decrease from the Resonance value set on the front panel.

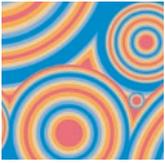
Having this bi-polar control provides for some really cool effects and allows you to modulate the Resonance inversely from the modulation of Frequency. So you could have the resonance modulation decreasing, as the Frequency is increasing, or visa-versa. The overall amount of modulation to the Resonance is defined by the value set with the Res Mod control.

### Res Mod Polarity switch

The modulation polarity switch located directly under the Res Mod knob can be used to quickly "flip" the direction of the Resonance modulation. The "Normal" setting means that the direction of the modulation is in synch with the direction of the modulation signal; it is increasing as the modulation signal is increasing. The "Reverse" setting switches (reverses) the direction of the modulation being applied at the amount set by the Res Mod knob.

### Res Offset Mod

The Res Offset Mod knob allows you to modulate the Resonance Offset parameter with whatever modulation source being employed in the preset (LFO, Envelope etc). The Res Offset Mod knob is also "center justified". When set at 12 o'clock no modulation is applied to the Resonance. Turning the knob clockwise or typing in a positive



number will modulate and increase the Resonance Offset. Turning the Res Mod value counter clockwise will modulate the Resonance Offset in a negative direction.

It is important to keep in mind that the setting of the Resonance Offset in the Mode Tweak defines the "default" starting point for the Resonance Offset modulation. Positive going modulation will increase the Res Offset from the value set on in this menu where as negative modulation will decrease from the Resonance Offset.

Again, this provides for some really cool effects and allows you to modulate the Resonance Offset (Resonant Frequency) inversely from the modulation of the Resonance or the Frequency and by a specific amount. The overall amount of modulation applied is defined by the value set with the Res Offset Mod control.

#### Res Offset Mod Polarity switch

The modulation polarity switch located directly under the Res Offset Mod knob can be used to quickly "flip" the direction of the Resonance Offset modulation. The "Normal" setting means that the direction of the modulation is in synch with the direction of the modulation signal; it is increasing as the modulation signal is increasing. The "Reverse" setting switches (reverses) the direction of the modulation being applied at the amount set by the Res Offset Mod knob.

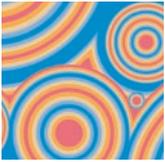
#### L/R Offset

The L/R Offset knob is a little different than the other knobs as it allows you to create various types of stereo phase signals depending on the setting of the knob. In the simplest terms it is a static frequency offset between left and right channels.

With the knob set to 12 o'clock the phasing effect on both the left and right sides will be identical. However as you turn the L/R Offset knob clockwise from the 12 o'clock position, or input a positive value into the number field (from "0" to "2 octaves"), the frequency of the right channel will be increased relative to the left channel. This can create some dramatic and very wide stereo effects. Extreme settings can make you feel as if your eardrums are being sucked out of your head and make the phasing effect swirl around in the stereo field! Negative values for the L/R Offset will make the right channel have a lower frequency setting relative to the left channel.

#### L/R Offset Polarity Switch

The associated L/R Polarity switch affects the modulation only. In the "Normal" setting the modulation is same for left and right. When the switch is reversed, left and right channel modulation is the inverse of each other creating a swirling panning effect in stereo.



## MODULATION CONTROLS

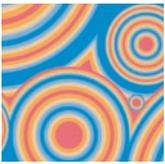
### Choosing a Modulation Type and Source



When it comes to modulation the more sources you have the greater the sonic possibilities. PhaseMistress includes a number of different modulation options selected under the small white button below the Rate knob. The available types of modulation available include:

- LFO
- Rhythm
- Envelope
- Random
- Step
- ADSR

To select one of the modulation sources, click on the LFO" pop-up button, drag the mouse to highlight the desired type and let go. You will notice that the name above the button will change (as will the parameters in this area of the front panel). Though the button name will change to reflect the selected type of modulation, the function of this button remains constant: opening the menu to select among the various types of modulation.



## LFO Mode



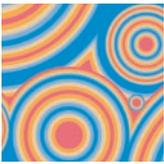
The "LFO" mode stands for Low Frequency Oscillator. An LFO creates a repeating waveform (usually with a selection of various wave shapes) that oscillates at a rate between 0 and 20Hz. This is why it is referred to as a "Low" frequency oscillator as 20Hz is still considered pretty slow in comparison to an audio signal. However, the PhaseMistress LFO has a slightly wider range and can go as fast as 100 Hz.

### Rate

The "Rate" knob controls the speed or rate of the LFO's sweep and is displayed in Hertz. A sweep rate of "1 Hertz" (1Hz) means that the LFO modulation will repeat once per second. As we mentioned, the maximum setting of the LFO in PhaseMistress is 100 Hertz (100Hz) meaning it will repeat 100 times per second. Modulating the filter at this speed is pretty darn fast and can create weird "side bands" that are inharmonic making the sound kind of "clangorous". This is "kind of" like the sound created by a Ring Modulator and can be a useful effect. Note that at this speed the sound of the original signal will often be totally warped out and unrecognizable.

### Shape

The "Shape" nudge buttons are used to select from the list of available built-in LFO wave shapes. PhaseMistress includes all "standard" LFO shapes like sine, triangle and square etc, but also includes a method for you to create you own custom wave shapes, which greatly increases the sonic modulation abilities of PhaseMistress. The number of possible shapes you can create is virtually limitless.



### Select the Custom LFO Shape Screen:

To create a custom LFO shape, you first need to get to the LFO Edit screen. Click on the LFO shape LED display to display the shape pop-up menu. Select "Edit" at the top of the popup menu. This will launch a screen where you can create custom LFO shapes.

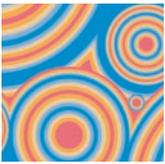


### Creating a New LFO Shape / Adding "Points" to the Waveform:

Creating a new shape is really pretty easy. To create a new shape you first need to add a new "point" in the waveform (you'll notice that the starting shape is a sine wave with three points: one at each end and one in the middle at the top). To add a new "point", simply click anywhere on the green waveform; this will insert a new point. To remove a point, hold down the option key while clicking on it with the mouse. To change the shape of the wave, click on the new point and drag it up, down sideways etc. You will see that the shape of the green waveform line will change based on where you position the point. Letting go of the mouse will position the point where you left it. You can create as many points on the waveform you like and use the "grab/move" operation to reposition any of the points. This process allows you to create some REALLY complex wave shapes.

### Smoothing:

The "Smoothing" control allows you to "round out" the edges in the wave shape between the points. When smoothing is set to zero (no smoothing), the waveform will have a stair-step appearance and will jump abruptly from point to point. By increas-



ing the "Smoothing" control you can decrease the abrupt changes between the points and smooth out the transitions between points by varying amounts. When set to its maximum value the waveform will be completely smooth.

### Smoothing Mode:

The Smoothing Mode determines the "shape" of the smoothing that will be used to connect the points. This further increases the variety of waveforms you can create within PhaseMistress' Mod section. The Smoothing Mode choices are as follows:

Linear: Points are connected using straight lines

Sine: Produces a sinusoidal-like waveform, which is very smooth.

Exp: Produces a "scooped", curved waveform where the curve is not even but kind of "rises quickly", similar in shape to those used in an exponential analog ADSR envelope

Sym: Produces a curved shape that is even and symmetrical.

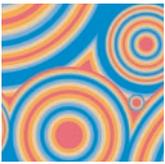
### Naming and Saving Custom Waveforms:

Once you have edited a shape and created a new LFO waveform, the Shape LED display will show the word "custom" indicating that a new shape has been created. To keep your wave shape handiwork from going to data-heaven, you need to save it and give it a name. Pressing the Save button allows you to name and save the waveform for future use. Once saved, the new shape will appear in the "Shape" popup menu under the Preset menu entry and can be selected as previously described.

## Rhythm Mode

The "Rhythm" mode is a much more sophisticated version of the LFO and provides the means to sync the LFO (regardless of the shape) to the tempo of a song in Pro-tools. Using the Tempo mode allows you to produce complex filter modulations that can be programmed in musical and rhythmic ways.





## Tempo

You can use Tempo in one of two ways; "Lock to Midi Beat Clock" or "Tap Tempo". To lock PhaseMistress to Midi Beat Clock, follow the procedure on page 15. Locking the LFO to Midi Beat Clock insures that the sweeps will lock in march-step to your songs tempo and not waiver.

If you're not using MIDI beat clock to lock PhaseMistress's tempo, you can simply tap in a tempo by clicking on the "Tap Tempo" button. You can also enter an exact tempo (in BPM) by clicking on the Tempo LED display and entering the desired value with the computer keyboard.

## Rhythm

You can also choose specific rhythmic divisions using the "Rhythm" menu. You can select from one of the included simple rhythms by clicking on the Rhythm LED display, which will launch a pop-up showing the available preset options. Simply highlight the desired rhythmic interval with your mouse and let go. You can also use the two nudge buttons to move through the various rhythm choices.



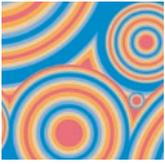
### Custom Rhythm Editor:

In addition to the preset rhythms provided, PhaseMistress includes a very powerful and unique Custom Rhythm Editor feature that allows you to create your own rhythms. To access the Custom Rhythm Editor, select the Edit option from the Rhythm pop-up menu.

The Rhythm Editor works a bit like a simple drum machine. By default, the basic rhythm pattern is one bar long and is shown in the rhythm display. For each selected event in the rhythm pattern, one entire cycle of the LFO Shape will be triggered and played.

### Adding and Deleting Events:

To add an event in a specific location simply click in the rhythm grid at the desired location and a new event will be added to the pattern. To remove an event, just click on the event you wish to remove and it will go bye-bye.



### Changing Event Level and Duration:

To change event level or duration, option-click and drag on any existing event. Dragging up/down will change the level, and dragging left/right will change the duration.

### Adjusting Grid Length and Spacing:

You can further adjust the grid spacing and length of any new events using the Grid control.

### Pattern Length / Number of Beats per Bar:

Increasing the length of a pattern is easy. To create patterns longer than 1 bar simply adjust the Pattern Length control to the desired number. You can also adjust the number of Beats per Bar for the pattern up or down.

### Saving A Custom Pattern:

Once you have created a custom pattern it can be stored and named for future recall. After creating your rhythm, the Rhythm LED display will show the word custom. Pressing the Save button will allow you to name and save the pattern. Once saved, the new rhythm will appear in the Shape popup menu under the Preset menu entry.

### Selecting a Rhythm Preset:

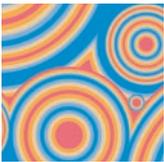
To select a Rhythm Preset, choose the "Preset Menu" option to view the list of available rhythms.

### Groove

The Groove control is used to adjust the feel and define the amount of "swing" feel to be added to the selected rhythm pattern. Turning the knob will add a 'swing' feel to the rhythm. Turning the knob down will add a 'shuffle' feel. This allows you to swing and shuffle all night long! Have mercy!

### Shape

The shape control works just like the Shape control for the LFO mode, except that one cycle of the shape is inserted for each rhythm event.



## Envelope Mode



The Envelope Mode employs an "envelope follower" that "follows" the volume level of the input signal and dynamically controls the amount of filter modulation based on volume changes in the input signal. The Envelope Mode works great on dynamic signals that dynamically change in volume in rhythmic ways like guitar or drums. PhaseMistress allows you to create envelope controlled phasing effects and a whole lot more using the envelope mode.

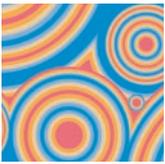
### Threshold

The Threshold knob works similar to the threshold control on a compressor. It defines at what volume the envelope follower will start "tracking" the volume changes in the input signal. As the input level rises above the threshold, the envelope follower 'follows' the signal and will modulate the frequency accordingly. The farther above the threshold level and the louder the input signal, the more the filter will be modulated. As the signal falls below the threshold level no modulation occurs.

It is important to adjust the Threshold based on the type of input audio and the amount of modulation you wish to achieve. Setting the Threshold very high will only modulate the phase at loudest peaks of the incoming signal. Setting it too low can cause the phase to be modulated like crazy and jump around following all the changes in the signal. It all depends on the amount of modulation you wish to hear and there is really no right or wrong setting.

### Gain

The Gain knob works together with the threshold control, and is similar to the ratio control on a compressor. It determines the overall "sensitivity" of the envelope follower, and is used to boost any signal that exceeds the setting of the threshold control. This can be very useful when you are using either a very high threshold, or slow attack settings. At the highest gain settings the envelope follower will begin to function more like a gate, turning 'on' when the input goes above the threshold, and turning 'off' when the signal goes below. At lower gain settings the envelope follower will be more touch sensitive and dynamic.



### Attack

The Attack knob controls the how fast the phase effect will react to an increase in signal level. A fast setting will cause the envelope follower to react very quickly to transients, and will produce a very dynamic, staccato-like phasing effect. Setting the Attack knob to a slower setting will smooth out and lengthen the attack response the envelope follower. PhaseMistress will behave like it has had a few too many beers!

### Release

The Release knob controls how fast or slow the phase signal will react to the input signal as it decreases (the opposite of the Attack knob). Again, a faster release setting will produce a more dynamic effect, and slower release times producing a slower, smoother effect as the sound decays.

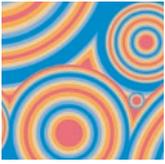
## Random S/H Mode



The Random S/H (Sample and Hold) Mode produces a waveform that jumps from one value to another at each cycle. This effect was used with a resonant filter (and abused by ELP) in the beginning of Brain Salad Surgery, you know..."Welcome back my friends to the dinosaur that never ends" as well as other cheesy sci-fi movies to mimic the sound of bleeping and burping computers. However, it is an especially cool effect when applied to phasing and PhaseMistress offers a few twists so that its sample and hold can be synced to the tempo of your music.

### Tempo

As before, you can either use Tap Tempo to define the BPM of the random signal or sync it to Midi Beat Clock. When using MIDI beat clock the display will show the current tempo. Use the Tap Tempo as previously discussed.



## Rhythm

The Rhythm pop-up allows you to set the speed or rate at which the sample and hold will jump to a new value.

## Smoothing

The Smoothing knob works much the same as it does in the Rhythm Editor and can be used to smooth out transitions between the random values. A setting of zero equals no smoothing and the values will jump from one to the next. The maximum setting will give you a smooth, constantly changing random phase variation sometimes referred to as the "drunken walk" for obvious reasons.

## Random Step Mode



The Random Step mode combines the sample and hold effect with an envelope follower. Instead of changing to a new value at a specific set rate, a new random value is triggered when you press the Trigger button; in response to a MIDI note trigger, or when the input signal exceeds the Threshold setting.

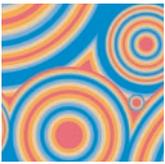
This works really great on drums and other highly percussive signals, and can be used to create a creative, dynamic effect that varies with each audio event.

## Trigger

Press this button to trigger a new random value. The trigger button will also respond to any MIDI note event.

## Threshold

As previously discussed, the Threshold knob controls the level at which the input will trigger a new random value. To turn off audio based triggering (if you're using MIDI or manual triggering), turn the threshold knob all the way up.



## Smoothing

The Smoothing knob controls how fast the filter will move from the previous value to the new random value once the input has passed the Threshold. The minimum setting will cause abrupt transitions to the new random value and at higher settings the filter will smoothly "ramp" to the new value.

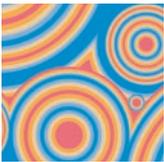
## ADSR Mode



ADSR Mode is a recreation of the standard envelope generator found on most synthesizers. If you're new to synthesis technology, ADSR stands for Attack, Decay, Sustain, and Release, which also happen to correspond to the four knobs of this mode. Funny how it works that way!

With the ADSR you can define a specific envelope shape that will be used to modulate the phaser each time it receives a trigger *based on the level* of input signal. This is quite a bit different than the Envelope mode whose shape changes and responds dynamically to the input signal

On a keyboard synth, the ADSR envelope is triggered each time you press a key. In PhaseMistress, the "ADSR" is triggered either by pressing the Trigger button, by receiving a MIDI note event, or when the input signal exceeds the Threshold setting.



## Trigger

Press and hold the Trigger button to trigger the ADSR envelope. As long as you hold the button the envelope will move through the Attack, Decay and Sustain portions of the envelope. The modulation envelope will increase the phase frequency and attack to its maximum value, then decay to the sustain value based on the settings of the individual Attack, Decay and Sustain knobs. When the trigger button is released, the envelope will decrease to zero (release) based on the setting of the Release knob.

## Threshold

You can also trigger the ADSR based on the level of the input signal. Just set the Threshold knob to a value other than maximum value. Each time the input signal moves above the Threshold level the envelope will be triggered. If you don't want the audio to trigger the ADSR make sure the Threshold is set to its maximum value.

## A - (Attack)

The Attack knob determines how fast the envelope will increase to its maximum value once it has been triggered. The lower the setting of the Attack knob the faster the attack time! As you increase the setting of the Attack knob the attack time will get longer / slower (like increasing the Smoothing parameter) Keep in mind that the possible modulation level goes from a hypothetical 0 to 100%, so the Attack time determines how fast the envelope modulation signal will move from a level of "0" to a level of "100".

## D - (Decay)

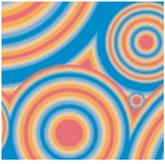
Once the Attack has reached its maximum value, the envelope moves to the Decay stage and the modulation signal "decays" then until the Sustain value is reached. The Decay knob controls the speed or length of the decay time. The lower the setting of the Decay knob, the faster the decay time will be. Conversely, the higher the setting of the Decay knob the longer the decay time will be and the longer it will take to reach the Sustain level.

## S - (Sustain)

The Sustain knob controls at what level (between 0 -100%) the envelope will "hold" or sustain at as long as the Trigger button is held down, or, as long as the input signal is above the Threshold setting.

## R - (Release)

The Release knob adjusts the time it takes for the envelope signal to move from the Sustain level back to a "0" level once the Trigger button is released, or after the input goes below the Threshold.



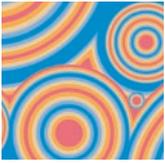
## **S U M M A R Y**

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Hopefully this manual has provided enough of the information you need to have a basic understanding of how PhaseMistress works. We could go on and on providing LOTS of picayune details but you probably would get bored, throw the manual down and start tweaking anyway. Which in all honesty is what you should do.

PhaseMistress and the whole series of SoundToys plug-ins were MADE for tweaking. There's nothing to break, no parts to rust or replace and you really can't screw it up. What you CAN do is screw up your sounds and that is what PhaseMistress is for: creative sound mangling! We sincerely hope you find PhaseMistress inspiring and useful in your musical endeavors.

Enjoy!



## FINAL PAGE

### Getting Help

We offer free technical support for all registered users. We love to hear from you, but if you are having problems, first try to look in the manual or on the support page of our web site for an answer. If you are still stumped, please e-mail us with the following info:

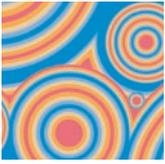
- The product version and serial number.
- The version number of your Pro Tools system, and type of hardware (e.g. Mix, HD, Digi-001, etc.)
- Your computer type and operating system version number (e.g. System 9.1, OS X, etc.)
- A detailed description of the problem

The e-mail address for support is: [support@soundtoys.com](mailto:support@soundtoys.com)

If you don't have e-mail, you can call us at 1-802-951-9700.

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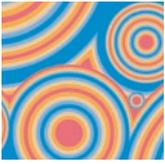
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