PHASE28 Phase Shifter
[RACK EXTENSION] v. 2.1
MANUAL
2020-2024

FX device by Turn2on Software

Introducing **PHASE28**, a new phase shifter effect. The Stages selector gives you control of how many stages from 2 to 8. Use 4 for a classic 4-stage phaser, or 2 stages for subtle shimmer effects. You can increase the stages to 6 or 8 stages for new creative experiments.

Stage models based on the famous orange phaser pedals and legendary phaser - "stone" pedal.

A phaser usually is a free-running effect. In this free-running mode, the phased sound starts at various times every time you hit Play in the sequencer. We added a SYNC mode with sequencer BAR snap. SYNC mode can align the playback position to the start of every bar to synchronize the phased sound

Do you want high fidelity with shimmering and subtle underwater type tones, or to experiment with 6 or 8 stages?
Try it today to find out what it can do for you

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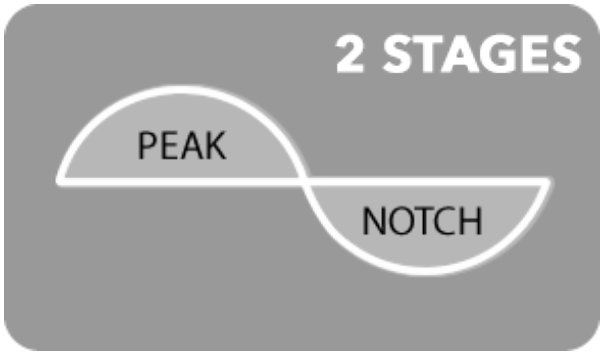
THEORY OF PHASE

Basic phasers have at least two all-pass filters to create one notch and one peak for a 2-pole effect that creates 2 stages. Increasing the number of stages creates a stronger, more complex sound.

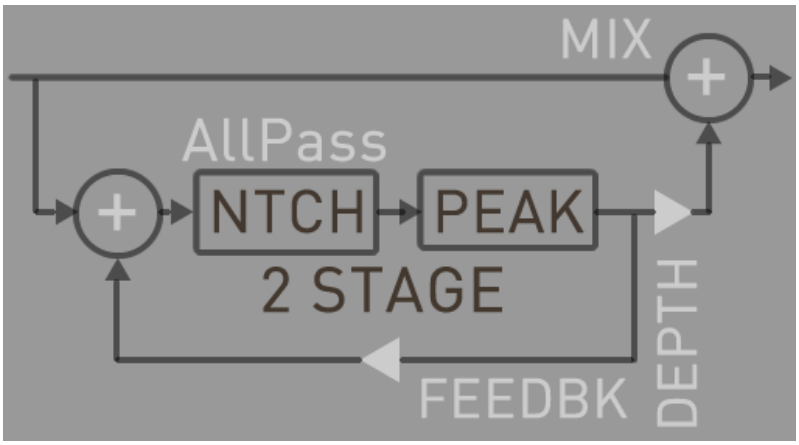


STAGE number determines the number of notches and peaks in 360° phase-shifting. Peak or Notch have 180° shifting.

Phase effects are created by splitting audio signal into two paths; one with **All-Pass filters** and one with the original signal.

The All-Pass filter in one stage helps to create a **Notch**. When the original signal and the signal from the All-Pass filter are mixed, frequencies that are out of phase will cancel eachother out, creating the phaser's characteristic **Notches**. When the original and delayed signals are "in phase" with each other, that frequency will be boosted to a higher level, creating a **Peak** at that frequency.

Each "stage" in the effect adds more notches and peaks in the frequency response, giving more complexity to the sound.

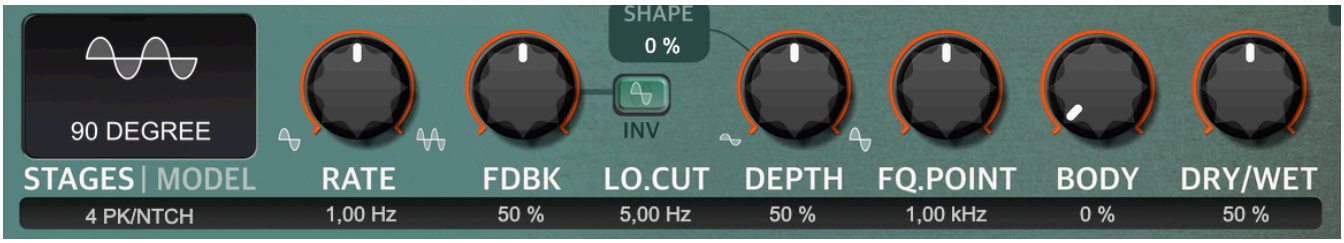


The output can be fed back to the input for a more intense effect, creating resonance by emphasizing frequencies between notches. This involves feeding the output of the all-pass filter chain back to the input. At high settings, the effect will become highly resonant, similar to a WahWah effect. **FEEDBACK** can be **inverted**, creating another variant of the effect.

DEPTH change the size of notches, governing how high the filter frequencies sweep. At lower settings the phaser will primarily affect bass frequencies, while at higher settings the phaser effect can sweep high into the treble range.

While Guitar pedal effects are usually mono, a stereo phaser applies the effect to left and right stereo inputs, or to a duplicated mono input, using two independent chains of all-pass filters. The two chains of filters are often modulated 180 degrees out of phase. This makes the left channel's notches and peaks sweep up while the right channel sweeps down, and vice versa, creating a richer phaser and a wider stereo image. On the PHASE28 this can be adjusted with the **BODY** parameter.

BYPASS - disable effect
ON - enable effect
OFF - mute incoming signal

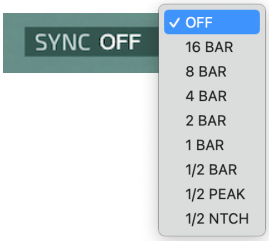


MODELS	
45 DEGREE	2 Peaks/Notches
90 DEGREE	4 Peaks/Notches
135 DEGREE	6 Peaks/Notches
180 DEGREE	8 Peaks/Notches
70s SWEEP	70's sweep sound

MAIN PARAMETERS	
RATE	Modulation rate / Phase Speed
DEPTH	Frequency modulation. Set the highest and lowest frequencies to sweep the filter
SHAPE	Shape amount of the frequency modulation depth
FEEDBACK	Add resonant peaks between the notches
FDBK INV	Flip feedback polarity for a different sound character
FQ POINT	Set frequency point: up or down from mid position (by default at center)
STAGES	Number of stages (peaks+notches). Frequencies (coming out from All-pass filters) that are out of phase will cancel eachother out, creating notches. Select fx mode between orange and stone models
BODY	Frequency offset for stereo effect
DRY/WET	Crossfade of dry signal and phase shifted audio

FREQ CRACK	
Mid Cut Passive Filter	Cut only Mid frequencies, save Low and High
High Pass Cutoff	- HP12: 12dB/oct lowpass. Cut Low frequencies
Low Pass Cutoff	- LP12: 12dB/oct lowpass. Cut High frequencies

ACTIVITY AND CORRECTION	
ACT / SOFT BYP	Enable / Bypass Phaser effect. Soft bypass variant
INPUT	Correction amp gain of the dry input level (unprocessed input signal) before it goes to the Dry/Wet control
OUTPUT	Correction amp gain of the output level of the processed signal after it leaves the Dry/Wet control



SYNC	
SYNC SIZE	16 BAR, 8 BAR, 4 BAR, 2 BAR, 1 BAR, 1/2 BAR, 1/2 BAR PEAK, 1/2 BAR NOTCH

* SYNC mode other than OFF disables Rate, Depth and Fq Point

NOTE: A phaser is a free-running effect. In this free-running mode, the phased sound starts at various times every time you hit Play in the sequencer. We added a SYNC mode with sequencer BAR snap. It's possible for SYNC mode to align the playback position to start of every bar to synchronize the phased sound.

BACK SIDE PANEL

AUDIO INPUT/OUTPUT
Mono or Stereo connections for audio signals.

CV INPUTS
Use these CV inputs to control the main parameters with external CV source curves

IF YOU USE SYNC, NOT USE CV-IN FOR RATE, DEPTH, FQ POINT

WHY WE NAMED IT PHASE28?

YOU CAN SELECT FROM 2 TO 8 STAGES. Classical Phasers is 2/4 stages. But you can use 6/8 stages.
BETTER IF YOU READ NAME OF PHASER AS **"PHASE-TWO-EIGHT"**

PHASE 28

Phase Shifter

Re
Rack Extension

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Rack Extension Developer

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Special thanks to all beta-testers