



## STEREO POLYPHASE PHASE SHIFTER

Congratulations on your purchase of the Stereo Polyphase, an envelope follower and LFO controlled phase shifter. The Stereo Polyphase is a spectacular phase shifter that uses optocouplers to produce a smooth, liquidy tone that can elevate your playing out of this world. Unlike most phase shifters, the Stereo Polyphase FEEDBACK control gives you the ability to vary the sound of the phase shifter, so that you have the final say on the character of the phase shifter's tone.

The Stereo Polyphase allows for optimal user control in three modes of operation. In ENV mode the Stereo Polyphase is a phase shifter controlled by an envelope follower. In LFO mode the Stereo Polyphase is a phase shifter controlled by a low-frequency oscillator. In EXP mode use an expression pedal (not included) to control the phase shifter. You may also use an expression pedal in LFO mode or in ENV mode to control the range of the phase shifter. Hook up the Stereo Polyphase in stereo (each output to a separate amp/mixer channel) for a broad stereo image.

### -POWER-

**WARNING:** Your unit comes equipped with a 24 Volt/100mA AC external power adapter. **Use only the power adapter supplied**, and make sure it is appropriate to your location (USA, Europe, Japan, Australia). Use of the wrong adapter can cause damage to the unit or to you, and will void the warranty. Connect the included 24VDC/100mA AC Adapter to the Power Jack, located at the top-center of the Stereo Polyphase.

### -CONTROLS-

**FEEDBACK Knob** – Controls the amount of signal feedback from the output of the phase shifter circuit back into the input of the phase shifter circuit. As you turn the feedback control up, the phase shift effect will sound more pronounced and even sound 'peaky' at high settings. The FEEDBACK knob is always active.

**MODE Knob** – When set to ENV the phase shifter is controlled by an envelope follower. When set to LFO the phase shifter is controlled by a low-frequency oscillator. When set to EXP the phase shifter is controlled by an expression pedal (not included).

**GAIN Knob/OVERLOAD LED** – Active ONLY in ENV mode. Controls the sensitivity of the envelope follower circuit. In ENV mode, an envelope follower controls the phase shifter. This means that the amplitude of the input signal (your instrument) will determine the response of the phase shifter. Use the GAIN knob to set the amplitude of the envelope follower circuit. When the output of the GAIN knob exceeds the maximum amount of phase shift, the OVERLOAD LED will light up. When you first begin using the ENV setting, we suggest you turn the GAIN knob up enough so that the OVERLOAD LED briefly lights up on most of your notes. Please note the OVERLOAD LED may light up when the mode knob is set to either LED or EXP modes but the envelope follower will not modulate the phase shifter in these modes.

**START Knob** – Sets the START point of the phase shifter's range.

**STOP Knob** – Sets the STOP point of the phase shifter's range.

**A Note on RANGE of modulation:**

The difference between the START and STOP knobs determines the RANGE of modulation. For maximum RANGE set and START knob to minimum and the STOP knob to maximum, or vice versa. As you move the START and STOP knobs closer together, you will decrease the RANGE of modulation. These knobs can also be used together to voice the phase shifter. If you put both knobs at their minimum positions and turn them simultaneously to the maximum position, while playing, you will hear the range of sounds available to you.

**A Note on DIRECTION of modulation:**

The relative position of the START and STOP knobs also determines the DIRECTION of modulation. For example, when using the ENV setting, if START is below STOP, when you pluck a note the phase shifter will jump up from the START position to the STOP position, then slowly descend back to the START. The opposite will happen if STOP is set below START.

**RATE Knob** – Active in LFO mode only. Controls the speed of modulation by adjusting the LFO's rate of oscillation.

**Toggle Switch** – In ENV mode the toggle switch determines the speed at which the phase shifter reacts to your playing. When set to FAST the envelope follower will

respond quickly to your playing. When set to SLOW the envelope follower will respond slowly to your playing.

In LFO mode the toggle switch determines the shape of oscillation. In the UP position the LFO will produce a triangle wave, giving the phase shifter a smooth modulation from the START to STOP settings. In the DOWN position the LFO will produce a square wave oscillation and the phase will jump between the START and the STOP settings.

EXPRESSION PEDAL/EXP MODE – In EXP mode the phase shifter circuit is controlled by an expression pedal or control voltage. In this mode, the GAIN and RATE knobs are inactive. The START and STOP knobs will determine the range of modulation. The 'toe-up' position of the expression pedal corresponds to the setting of the START knob. The 'toe-down' position corresponds to the setting of the STOP knob. As you move the expression pedal from 'toe-up' to 'toe-down' the phase shifter will move from the START to STOP settings.

The expression pedal may also be used in ENV mode and in LFO mode. Use the START and STOP knobs to determine the RANGE of modulation. When the expression pedal is 'toe-up' the envelope and LFO will modulate over the full range set by the START and STOP knobs. As you move the expression pedal to 'toe-down' the ENV and LFO RANGE will decrease towards the point set by the STOP knob.

FOOTSWITCH/STATUS LED – The footswitch engages/disengages the effect. If the effect is engaged, the LED will light up. In true-bypass mode, the LED is off.

INPUT Jack – Connect your instrument's output to this ¼" mono jack. The input impedance presented at this jack is 380 kohms.

MAIN OUT Jack – Connect this ¼" mono jack to your amplifier's input. The output impedance presented at this jack is 250 ohms. When using the Stereo Polyphase as a mono device we recommend you use the MAIN OUT jack.

STEREO OUT Jack – Connect this ¼" mono jack to your second amplifier's input. The output impedance presented at this jack is 250 ohm. When using the Stereo Polyphase as a stereo device use the STEREO OUT jack for your second channel.

EXP. PEDAL Jack – Connect this ¼" stereo jack to your expression pedal. The expression pedal must have a connection for a TRS cable, stereo ¼". You cannot use a volume pedal. We recommend the following expression pedals: M-Audio EX-P, Moog Expression Pedal, and Roland EV-5. You may also connect a Control Voltage, from a synthesizer for example, to the Exp. Pedal Jack. The Control Voltage must be between 0V~5V.