POSITRONIC TRANSIENT GATE

Reference Guide and PTG CRASH COURSE

Thank you for purchasing the Steady State Fate Positronic Transient Gate! We hope you find the PTG's many features to be a pleasing addition to your modular synthesizer and an invaluable tool for electronic music creation! The purpose of this informal quick start guide is to simply get you up and running with minimal fuss. A more detailed patch manual is in the works and will be available as a PDF download from www.steadystatefate.com. In the meantime, our experienced minions are available to answer any questions or concerns you have via our website info request form.

The PTG provides two identical units on a single 14hp panel. Each unit is independent of one another with the exception that **IN A** is normaled to **IN B** when a JACK is not inserted into **IN B**. The PTG is driven by two methods. In **GATE** mode: ON a signal greater than ~2V at **IN A** and/or **B** will gate the PTG on. In **ON** mode: ON , The PTG will be permanently biased on and signals at **IN A** and **B** will have no affect turning the PTG on or off. In addition to being gate inputs, **IN A** and **B** are also inputs to the PTG's manual **GAIN** amplifier. The signals here are first used to gate the PTG if in **GATE** mode and then routed to the **GAIN** amplifier. The **GAIN** amplifier is always active in either of the above drive modes. Use this feature to add distortion and overdrive, amplify low and line level signals, adjust the gain and threshold level in envelope follower applications and amplify the PTG's envelopes to get a huge variety of vactrol shapes at low **STEP RESPONSE** (attack/amplitude) settings.

STEP RESPONSE: use this control to vary the attack and amplitude phase of the PTG transient at the same time. Use the **GAIN** amplifier of the other side to amplify the transient if desired to get a full amplitude response or just a touch to add some envelope punch. Higher gain settings can also add an auto hold phase to the envelope. Apply **STEP RESPONSE CV** to modulate the attack/amplitude phase of the tranisent only. Use the switch to select uni or bipolar CV or to select whether the positive or negative portion of a bipolar signal has more influence than the other. The **STEP RESPONSE** control acts like a traditional CV attenuator when CV is applied to the **STEP RESPONSE CV** input.

DAMP CONTROL: use this control to vary the release (ringing)/amplitude phase of the PTG transient at the same time. Fully clockwise settings will keep the vactrol open and ringing and can be almost infinite depending on CV and the PTG's other settings. Setting this control at a point before the **OPEN** mark is a good starting point for shorter transients. **STEP RESPONSE** will vary depending on **DAMP CONTROL** and both controls can be very non-linear so try not to make big changes until you are more accustomed to the PTG's behavior, OK? **DAMP RESPONSE CV** responds well with unipolar positive or negative voltages. Use the switch settings appropriately for the CV polarity you are using. Bipolar signals can also be used and switching between the two modes will choose which part of the bipolar signal has the most influence. Positive CV results in an inverted unipolar response because **DAMP CONTROL** responds inversely to the applied CV. The entire PTG transient is affected by **DAMP CV**. Therefore if CV is applied to **STEP** as well, the CVs will mix during the attack/amplitude phase and only the **DAMP CV** will influence the release/amplitude phase. You will notice that **DAMP CONTROL** is reversed when attenuating CV, this is perfectly normal but not necessarily indicative of the type of response you will get at a particular setting. A good starting point is always mid range when adjusting CV intensity. Fully CCW will typically result in the most dramatic effects but is not necessarily the optimum setting. This all may seem a bit wacky but despite that fact you will find that the controls are extraordinarily easy to use. The PTG was intentionally designed this way to inspire creativity and encourage discovery.

CV IN GENERAL: The PTG will respond to any control voltage up to the sub- low audio frequency spectrum, do to the vactrol response limits. Don't be afraid to simply use gate signals as CV sources because the PTG's inherent response to a gate is an attack/hold/release transient. Hence it is a "transient-gate". Applying any CV signal that is faster than the attack phase will produce a multi-stepped or complex envelope. In bias mode the result is a looping envelope or LFO. The complexity is almost limitless and heavily dependent the applied CV and control settings. There is a lot of depth and range to explore so take your time and make small adjustments. Big changes can and will occur so expect the unexpected!

VCA: The normal outputs of the PTG are positive and inverted vactrol influenced control transients. The PTG also provides DC coupled **VCA** inputs: **A** and **B** for control voltages and audio signals. When a signal is applied to one of the **VCA** inputs, the envelope shapes described above will modulate the signal which will then be available at the outputs. Try wave shaping CV by setting the PTG in bias mode and apply an envelope, gate or LFO to the **VCA** input. Modulate **STEP** and **DAMP** with another CV source to wave shape the signal. Process audio through the **VCA** and use the output signals to modulate filters and other VCAs etc. Feed the modulated output back into the other side of the PTG to create deeper envelopes, based on the original. Experiment!

ALSO TRY: Feed an external AD or AR envelope signal into the main input while in **GATE** mode, then feed that signal into the **VCA** from **POST GAIN**. Apply CV to **STEP RESPONSE** to get a voltage controlled amplitude of that envelope at the outputs. Then try adding a little gain to give that envelope some punch! Careful, the gain settings can be very sensitive with **DAMP** at maximum and depending on your original amplitude level. Push it a little more to get a hold stage from the envelope. Now modulate **STEP** again. The **DAMP CONTROL** will determine the maximum amplitude of the output and the depth/range/shape of **STEP RESPONSE**.

The PTG loves to be sequenced with gates and other control voltages. The results can be quite phenomenal when controlling different combinations of filters, oscillators and other VCAs. There is no shortage of depth and range when used in this fashion and you will be surprised at the subtle nuances that can be uncovered by this vactrol hearted beast!

If you have access to an oscilloscope, it can be very helpful while exploring the possibilities that the PTG has to offer, but is not necessary, just fun!

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UNIVERSAL PASS GATE

So, what is a universal pass gate? Well, most of us are familiar with Low Pass Gates. A Low Pass Gate uses vactrols to control an internal VCA and/or VCF. The vactrols in a typical LPG are hardwired to these functions. The PTG 's transients are available for modulating any combination of VCA and VCF, including the PTG's own VCA. Therefore, the PTG can be used with any filter topology or any CV function and is therefore universal. Don't be fooled by other devices that try to imitate what the PTG's vactrol envelopes can do. No other LPG device can produce it's own adjustable and voltage controllable attack/amplitude phase like the PTG does. Or has the range of vactrol envelope shapes that the PTG can produce. The organic response of the available attack shapes can emulate the behavior of many traditional instruments like horns and even the human voice! So the PTG's pass gate abilities go far beyond percussion emulation.

To use the PTG as a UPG, simply patch the envelope outputs to an external VCF and VCA or use the internal PTG VCA. Remember that you can simply apply one gate signal to IN A to trigger both sides of the PTG. If using an external VCA, you will have two independently adjustable envelopes to modulate your VCA/VCF combo, which provide an even greater range of control and response, another feature unique to the PTG's UPG capability. When using the internal VCA, the PTG's output for that VCA will be modulated by the vactrols. You can use the other side of the PTG to modulate the VCF if you like, or try modulating the VCF with the inverted VCA output while feeding the VCF audio input with the normal VCA output for some very nice metallic shrills and zongs!

The PTG can be pinged with very short triggers as well. Use the **STEP RESPONSE CV** input for normal ping response and adjust to taste. Use **DAMP CONTROL CV** to get a subtractive or inverse ping. The different types of ping effects depend on the DRIVE mode, control settings and whether or not CV is applied to the remaining controls. Once again you are encouraged to experiment. This is new territory and you are the explorer, now go discover those musical nuggets!

ENVELOPE FOLLOWER

The PTG is a really cool envelope follower. It works a little bit differently than a traditional EF but is simple to use. When using modular level signals, simply apply your signal to IN A while the PTG is in **GATE** mode. Your input will serve to trigger the PTG on/off as the dynamics of your signal change. In some cases, a little attenuation before this input may be necessary. Otherwise, you can either keep the **GAIN** control down or turn it up a bit until your desired threshold is achieved. Grab your signal from the **POST GAIN** output and route it to a VCF or signal processor audio input. Apply the associated PTG CV output to the CV input of the device and parameter you would like to modulate. Adjust the **STEP** and **DAMP** settings to taste or modulate them with CV. If nothing is inserted into **IN B**, side **B** provides a second envelope follower with independent controls.

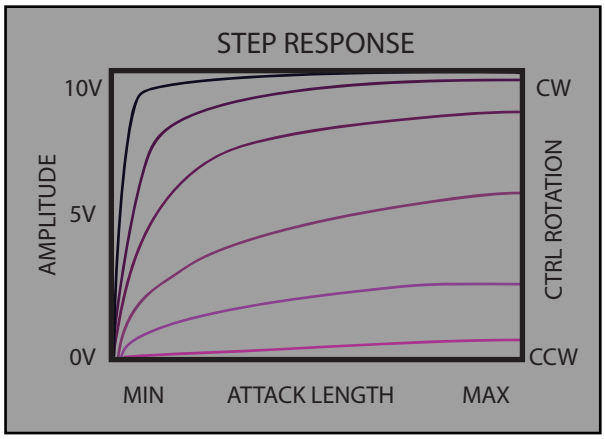
For line and low level signals, the **GAIN** control will provide enough amplification to trigger the PTG envelopes and bring the external signal up to modular levels to be processed. For more control over trigger threshold and signal amplitude, try using side A to set the envelope threshold and side B to adjust the final gain of your signal. Then you can use the envelope from side A and the amplified signal from the **POST GAIN** output of side **B**. This is a great way to add gain and even distortion without affecting the envelope response.

SIGNAL SPLITTER, BUFFER with GAIN

As you may have already realized, the PTG can be used to buffer and split signals while allowing independent gain adjustment of each output. All you have to do is to apply your signal to **IN A** and grab each from the **POST GAIN** outputs. Each output is controlled by their respective **GAIN** knob. This control provides gains of ~0.75 to 13. Use this feature to amplify external or low signals up to a desired range or get two amplified versions of a control voltage or audio signal. Add subtle harmonic content or crushing distortion to audio signals. Use this feature in conjunction with the PTG's **VCA** to push or modulate a signal into overdrive via voltage control.

ENVELOPES with GAIN

As you now know, the PTG's control parameters vary amplitude as well as attack/release. Take a look at the figure to the right which is a graphical representation of how **STEP RESPONSE** affects the attack/amplitude portion of the output envelope due to a gate signal. This behavior is a very useful dynamic feature but there are many interesting attack shapes at the lower amplitude **STEP RESPONSE** settings that can be amplified up to a more usable 5 to10V range via the GAIN control. When the **VACTROL DRIVE** setting is in biased **ON** mode, simply just feed your output signal back into its own **IN A** or **B** and apply gain. The amplified signal will be available at the **POST GAIN** output for that particular side of the PTG. If the PTG is in **GATE** mode, you will have to use the other side of the PTG **IN**put to apply the gain to your envelope signal. This feature is especially sensitive to the **GAIN, STEP** and **DAMP** settings where small changes can make all the difference. An oscilloscope module comes in very handy at least when first getting a feel for the response of the controls while performing these functions. In addition to raising lower level envelopes, the gain control can be used to add subtle, or in your face punch to envelopes and other transients. Higher gain settings will initiate an auto hold envelope phase with a duration that is adjustable with the gain control. Use this feature to create trapezoidal envelopes and 'sticky' envelope effects.



DC CV and DAMP CONTROL

When triggering the PTG and controlling the **DAMP** parameter with external variable DC voltages, there are two CV settings to be concerned of. The first setting is for when the switch is set to the positive unipolar range. In this setting, the **DAMP** control knob only has effect up to about 50% CW rotation. The second setting is when the switch is in the negative unipolar range. In this setting, The entire range of the **DAMP** control knob can be utilized. The negative unipolar setting is much more useful and recommended as up to very long ringing is possible when in this configuration. Also to note again is that **DAMP** will respond inversely to the applied CV. So 0V and very low voltage settings will have no or little affect on damping the signal. As the applied **DAMP CV** is increased, the ringing will become shorter and shorter until completely damped at roughly between 5-8V, depending on the settings of the PTG. . . **HAVE FUN!!**

TECHNICAL SPECIFICATIONS

Max current draw: +52mA, -35mA
Depth w/power conn: ~28-30mm
Module width: 14hp
In/Out range: 20Vpp
CV range: +/-10V

Reverse polarity protected
*Red stripe should always be towards the bottom.

RoHs and CE compliant

Made in the U.S.A

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