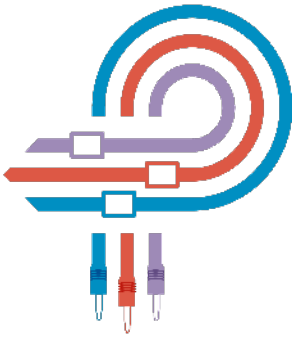
Lunar Lander

User Guide



Pulsar Modular®

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Lunar Lander is an emulation of Analog Delay, Plate Reverb and Saturation modules. These modules were taken from our Pulsar Modular P900 Soft. Synthesizer (released in 2014), and hence, can be enjoyed as an effect plugin in OSX (AU, VST3, AAX) and Windows (VST3, AAX) and iOS (Standalone, AUv3).
Lunar Lander will shine when applied to your synthesizer tracks giving them that fat, edgy and analog-ish feel. As we added many features from the original design, we are confident that you can use Lunar Lander on just about anything! It has the magic to "land" your tracks "in" the mix.
Don't be shy when experimenting with the knobs, as you will see and hear, Lunar Lander will act like an analog device when pushed to the limits.
Lunar Lander is a product of Pulsar Modular, a division of Pulsar Novation, and we hope you will agree with our motto: **The sound is unbelievable.**

Pulsar 931- Analog Delay

The 931 Analog Delay is an emulation of a Bucket Brigade Delay (BBD) - a discrete-time analog delay line popular in the 1970s and the early 1980s. The emulation includes the filtering, distortion and noise typical of such delays. P931 allows you to tap the delay repeats, but when “close enough” won’t cut it, version 2 now implements lock to DAW (Sync to DAW tempo bpm) with subdivisions.

- Clock Rate : Sets the rate (from 76 to 1201 bpm) at which the stored input signal is moved one step along the delay line. The flashing Tap gives you visual indication of the bpm of Lunar Lander (not the DAW). You can set the bpm by the Clock Rate Knob or by tapping on the Tap light. A minimum of two taps are needed to calculate the average of the new tempo (but the more the taps the more accurate it gets).
- BPM label(120 :) Displays the current bpm value
- Triplet:(⌐3¬) tap the beat of the triplet. By default, it is an Eighth-note triplet.
- Dotted ⅛(♪.): It creates a pattern that feels like 3-against-2, which seems as though it overlaps.
- Lock to DAW (DAW)Button: Locks the Delay bpm (Beats Per Minute) to DAW’s BPM. After activating this feature, Lunar Lander’s bpm will change automatically according to DAW’s BPM. Deactivate the button to change the bpm manually. ***Hint:*** *you can still try to change the bpm manually, which will create an analog audio stretching effect, but then locks back to bpm when you release the dial.*Lock
- Time Subdivision(1/8): This feature allows you to choose different time subdivisions when you’re locked to DAW. - also available in dotted and triplet form- Selected time division is highlighted.
- REGEN: The knob (sets how much delay is fed back to the input. This will control the number of repeats from one to "runaway". This knob may be called on some units “Repeat” or “Feedback”. This parameter also determines the BBD characteristic when BBD is on. Once the Regen knob value is set to 8 or higher, the repeats will go in a “runaway” mode. (*BBD knob should not exceed midway to achieve the runaway mode*). The delay signal is fed back to the input, in such a way, that it emerges at a higher volume each time it passes through the line (emphasizing certain frequencies- resonance like). Eventually, the signal amplitude exceeds what the line is capable of handling, and then the signal becomes progressively more distorted each time through. Once it enters runaway, it will continue indefinitely until the user intervenes. Analog delay lines in runaway will produce a distinctive effect: the input signal gradually morphs into a

machine-like noise, with substantial amounts of apparent reverb. Sometimes performers provoke this, and then try to keep the line at unity gain, to achieve the evolving effect.

- Modulation Depth : A built-in LFO that modulates the delay line, allowing for some chorus-like effects. Range is from 0% to 100%.
- Modulation Rate : It determines the LFO speed by changing the LFO frequency which is being applied to the pitch of the input signal, producing vibrato. The lowest value is 1Hz and the highest is 37Hz. Once you are above the 20Hz, the LFO is now in the human hearing range and you will get interesting electronic-like sounds. Experiment and enjoy!
- Sync(☐): A button that will sync the modulate rate to that of the Clock Rate. You can achieve extreme LFO frequencies that modulate the input buffer (the Delayed repeat signals).
- BBD: The BBD control allows the distortion and noise part of the emulation to be mixed in as desired. When fully attenuated, you have a clean delay that can be just as useful as the BBD distortion that provides an interesting color on the echoed signal; enjoy the result! (You can control the noise-floor level of the virtual hardware machine with the Noise screw for modern mixing workflow).
- LPF: New in version 2.1 is a 6dB smooth Low Pass Filter affecting only the Wet signal. This allows you creative blending, whether it is a dark delay that's tucked behind the dry signal- just to give it more body or clear and up-front delay- like a word that clearly repeats.
- Wet/Dry Mix : Blends the affected signal with the dry signal.
- Rocker Switch(▬): Flip the Delay and Analog modules in series (one effect feeds into the other) in the signal chain. Delay before reverb creates a longer pre-delay effect for the reverb. Reverb into delay may create a wash that blurs the overall sound (appropriate for ambient music).

Pulsar 933- Plate Reverb Knobs

The 933 Plate Reverb is using a reverberation network topology similar to those used in high end early 80's digital effects processors, with modulated tails. It is a very good sounding and flexible reverberation algorithm for which 3 different plate size configurations are provided.
When provided with a mono signal, the plate reverb generates a pseudo stereo signal. It also supports true stereo processing.

1) Decay: It determines the decaying factor. There is a base decay value for each plate.
2) Plate Size: This switches between some predefined set of variable settings for 3 EMT like plates.
3) BandWidth : This will define the bandpass of the filter that the wet signal goes through, while the plate effect is being created. This can prevent a muddy, indistinct sound that takes focus away from the kick and bass and reduces the high frequencies going into the reverb, thus reducing the metallic sound. Value of 0 will give you the widest band, while 10 is the tightest.
4) Wet/Dry Mix : Blends the affected signal with the dry signal.

Hardover(HARD OVER): Advanced Featured Knobs

Hardover is an aviation term: the condition where a rudder or control surface has moved to the extreme limit. We have used this term to open advanced features for better control of your Plate Reverb; opening a plethora of new sounds.

1) Lowpass Filter : Analog behaving circuitry based low pass filter with a range from 0Hz to 10KHz. It is an input filter. Signal is processed after going through the low pass filter. In P933, the default setting is 5500Hz. Increasing this value will let more of the high frequency make the reverb sound brighter, while lower value will give a darker sound.
2) Pre-Delay : Produces a delay between sound source and onset of reverberation. Default value for Pre-delay in the 933 is 0 for Plate 1 & 2 and 3ms for Plate 3. Now, in Lunar Lander you have a wide range of pre-delay from 0 ms to 100ms.
3) Damping : After the reverberation effect is created the sound spreads with a wide range of frequency components. With time, it starts fading. Damping defines the frequency band that will be contained from the beginning of the effect to the end of fading. Damping is the absorption of high frequencies in the reverb. Low damping values yield less high-frequency absorption- more “air”, whereas high damping values produce more absorption of high frequencies- warm and less “edge”. Lower the damping to allow high frequencies to decay slowly, hence, delivers a brighter reverb sound. While raising the damping value, chokes the

high frequencies and make a darker/warmer sound. P933 default value is 6 KHz for a more vintage sound.

4) Diffusion One and Two : Diffusion is the ability to spread a single pulse input into a very closely spaced series of pulses. The best acoustic example is the reflection of a click from an irregularly shaped wall. Very high diffusion causes a click to be spread into a swish of sound. Less diffusion causes a more grainy sound, and low diffusion can produce an obvious series of discrete clicks. With Version 2.0 of Lunar Lander you have full control on decay diffusion. P933 default settings are Diffusion One is set to 70% and Diffusion Two is set to 50%.

P938- Summing Amplifier

It's a summing amplifier with input gain stage (the knob under the volume knob) with saturation of two different types, Class A/B and Class A, that add harmonics and can be very useful for thickening the sound and generally providing 'color'.
The saturation is variable and an overload indicator shows how much it's engaged. The more you raise the input gain stage the more saturation you are getting, thereafter, you can use the volume knob to bring up or down the output level to your liking.

With version 2.2, now you have the option to turn off the Noise Floor. It used to be around -95 dB and now it is -110 dB.
BBD noise screw addresses the noise generated by the BBD Knob, which controls the quality and grittiness of the BBD behavior.

Ducking Feature( )

The automatic reduction of the Lunar Lander signal when your clean signal rises above the "threshold" - the delay recedes ("duck"), to let the notes you're playing come through uncluttered. This is our take on ducking within the technical bounds of how Lunar Lander is designed- so it has a slightly different behavior, as you will notice.

Automation

All parameters in principle can be automated, however, we noticed some discrepancies between different DAWs- so we wanted to point them out. In future updates, we will try to find a workaround.

Ableton Live (OSX AU plug-in):

- Buttons (Bypass and Rocker) do not record automation unless you first place an active dot to enable automation.
- To automate the clock Rate through tapping the LED, first create an active automation dot in the Clock Rate automation Lane.

Bitwig v3.2.2 (OSX VST3 plug-in):

- Tapping on the Clock Rate TAP LED does not record your change of bpm (though clock rate knob is updated).

Apple Logic Pro 10.5 (OSX AU plug-in):

- Tapping on the Clock Rate TAP LED does not record your change of bpm (though clock rate knob is updated).

Pro Tools

- Activating automation parameters through keyboard commands is not implemented due to limitations in the current development framework.

Insert vs Send Effect

As an insert effect plug-in, the original signal in the DAW is passed through the Plug-in; hence, only the effect unit output is used. Since this output replaces the original path with the effect path, these devices are called insert effects. A mix knob to blend in the original signal gives you more flexibility. Send Effect let's you add the effects signal to the original one and use the same instance of the plug-in for multiple tracks, hence, saving you cpu power. In a Send Effect implementation, the Mix knob is at the 100% WET.
Lunar Lander is extremely efficient and has less than 3% footprint on your CPU with zero latency; as such, you can use it, guilt free, as an insert on multiple tracks customizing the blending controls and even automating the controls for a dynamic mix. You could also use multiple Lunar Lander on the same track. For example, use one instance only for saturation and another instance for reverb. Or why not run Delay into another LL Delay!

Exceptions. Warning!

The unique analog modeling code we implemented does not work at times when you have heavy automation, stopping then starting within a heavily automated section , or multiple Bypass being pressed, or when switching to a different preset while the Delay

or Reverb is still going on. The reason for it is: when you change the input voltage suddenly, the internal oscillators will create instant spikes till it filters itself out and reaches the stable level. This translates to a short explosive burst. So please use a limiter when you feel your workflow with Lunar Lander is introducing such bursts.

Fine Tuning Mode (OSX & WIN)

You can use modifier keys for fine tuning. To activate the fine tuning, you need to press and hold the modifier key (in OSX: “control, option or command ”, in Windows: CTRL or ALT) while turning the knob.

Presets Directories

FOR WINDOWS

- You can find presets at the C:\Users\Public\Documents\Pulsar Modular\Lunar Lander folder.

FOR OS X

- You can find presets at /Users/Shared/Pulsar Modular/Lunar Lander folder.

FOR IOS

- All presets are saved in the Lunar Lander App. To access the presets, you can open your file browser and then go to the “On My Ipad” directory. The Presets folder is located under the Lunar Lander Folder.

How to Save( )/Save As( ) a Preset

Several methods are available to save the presets on iOS.

- You need to click on the “save( )” icon. This will override the current preset.
- If you want to save a preset with a new name click on the “save as( )” icon. This will pop up an options window. You can either choose the “AirDrop” or “Save to Files”. “Save to Files” option will save the new preset into the “Lunar Lander/Presets” folder in your IOS device. “AirDrop” option is for exporting. Please check the “How to Export/Import a Preset” section to see more.

FOR MAC OSX and Windows

- To override the current preset you need to click on the “save( )” icon.
- If you want to save a preset with a new name click on the “save as( )” icon. This will pop up an options window. You can enter a name and then click on save. Your preset will be saved with a new name into the presets folder. Check the “Presets Directories” to see the presets folder directories.

How to Export/Import a Preset

For IOS :
All presets that have been saved in your IOS device are placed in the IOS app folder. To access these presets you need to use a file browser and go to “On My Ipad\Lunar Lander\ Presets”. You can copy these presets to a Mac, to a Windows or to another IOS device. After copying these files, you need to place them into particular file directories to make them visible for Lunar Lander. You can see these directories in the “Presets Directories” section of this manual.

If you want to share a preset by “Airdrop”, you need to click on the “save as( )” icon to see the airdrop option. After clicking on the “AirDrop” option, your preset will be transferred to another device, again you need to place it into one of the proper presets folder directories that are mentioned in the “Presets Directories” section.

FOR MAC OS X and Windows

You need to go to the presets folder to copy a preset to move to another machine. You can find the directories in the “Presets Directories” section. Copy the preset/presets that you want to export. Move them to your other machine(you can use any method you like; email, airdrop, memory stick,...).Place them into the presets folder that is located in one of the directories mentioned in the “Presets Directories” section according to your operating system.

Uninstall Lunar Lander

FOR WINDOWS

Check two different directories and make sure that you deleted both of them.

1) The first directory is where “Lunar Lander.vst3” is located
   C:\Program Files\Common Files\VST3
   In the VST3 folder, you will see all of your vst3 plugins. Simply locate the “Lunar Lander.vst3 ” file and delete it.
2) The second one is where the “Pulsar Modular” folder is located.
   C:\Users\Public\Documents

In the Documents folder, you need to find the “Pulsar Modular” folder and delete it.

FOR MAC OS X

There will be three directories that you need to check

1) The first directory is where Lunar Lander.component is located
   /Library/Audio/Plug-Ins/Components
   In the Component folder, you will see all of your AU components . Locate the “Lunar Lander.component ” file and delete it.
2) The second one is where the “ Lunar Lander.vst3” folder is located.
   /Library/Audio/Plug-Ins/VST3

Again locate the “Lunar Lander.vst3” file and delete it.

3) The third one is where the “Pulsar Modular” folder is located.
   /Users/Shared

In the Shared folder, you need to find the Pulsar Modular folder and delete it.

FOR IOS

It can be deleted as all other ordinary IOS applications. Press and hold on the Lunar Lander Standalone Application icon, then click the “Delete App” option. Both standalone and AUv3 applications will be deleted from your device, as well as, your presets (so back them up).