USER MANUAL

1973-Pre

ARTURIA®
YOUR EXPERIENCE · YOUR SOUND

Special Thanks

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Thank you for purchasing 1973-Pre!

This manual covers the features and operation of 1973-Pre.

Be sure to register your software as soon as possible! When you purchased 1973-Pre you were sent a serial number and an unlock code by e-mail. These are required during the online registration process.

Special Messages

Specifications Subject to Change:

The information contained in this manual is believed to be correct at the time of printing. However, Arturia reserves the right to change or modify any of the specifications without notice or obligation to update the hardware that has been purchased.

IMPORTANT:

The software, when used in combination with an amplifier, headphones or speakers, may be able to produce sound levels that could cause permanent hearing loss. DO NOT operate for long periods of time at a high level or at a level that is uncomfortable.

If you encounter any hearing loss or ringing in the ears, you should consult an audiologist.

Introduction

Congratulations on your purchase of Arturia's 1973-Pre

Since the late 1990s, Arturia has received acclaim from players and reviewers alike for designing state-of-the art software emulations of the venerable analog synthesizers from the 1960s to the 1980s. From the Modular V, back in 2004, to Origin, a modular system that was introduced in 2010, to the Matrix 12 V (2015), the Synclavier V (2016), and most recently the Buchla Easel V, the DX7 V and the CMI V, Arturia's passion for synthesizers and sonic purity has given demanding musicians the best software instruments for professional audio production.

Arturia also has a growing expertise in the audio field, and in 2017 launched the AudioFuse, a pro studio quality audio interface that features two proprietary DiscretePRO® microphone preamplifiers and a set of top-notch AD/DA converters.

The ARTURIA 1973-Pre is the culmination of over a decade of experience in recreating the most iconic tools of the past.

ARTURIA has a passion for excellence and accuracy. This led us to conduct an extensive analysis of every aspect of the Neve 1073 hardware and its electrical circuits, even modeling the changes in behavior over the course of time. Not only have we faithfully modeled the sound and behavior of this unique mixer channel, we have added some features that were unimaginable in the days the Neve 1073 was being manufactured.

1973-Pre runs as a plug-in in all major formats inside your DAW. It has easy MIDI learn functionality for hands-on control of most parameters, and as a plug-in also allows parameter automation for greater creative control.

DISCLAIMER: All manufacturer and product names mentioned in this manual are trademarks of their respective owners, which are in no way associated or affiliated with Arturia. The trademarks of other manufacturers are used solely to identify the products of those manufacturers whose features and sound were studied during 1973-Pre development. All names of equipment inventors and manufacturers have been included for illustrative and educational purposes only and do not suggest any affiliation or endorsement of 1973-Pre by any equipment inventor or manufacturer.

The Arturia team

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1. WELCOME

Rupert Neve started building devices for studios in the beginning of the 70s, coming from a broadcast background and having some experience himself with recording. He grew up in Argentina, and as a young boy he repaired radios, built radios and sold them to friends, studied the Radio Amateurs Handbook, and already knew the valve catalogs by heart. At 17, he enlisted to serve his country during World War II, joining the Royal Signals.

After the war, Rupert Neve used a small legacy from his Grandmother to buy an ex-US Army Dodge ambulance, where he installed equipment to convert it into a mobile recording and public address control room. He recorded choirs, amateur operatic societies, music festivals and public events on 78 RPM lacquer disks (before the days of tape).

Rupert gained audio design and manufacturing experience with Rediffusion, Ferguson Radio, and as Chief Engineer of a transformer manufacturer. Since his employer was not interested in manufacturing Neve's designs, he decided to start his own company.

The first mixer designed by Rupert Neve was for Desmond Leslie, a composer of "musique concrète" (a musical style that worked with pre-recorded real world sounds, assembling, mixing and manipulating them). Leslie needed a device that would help him mix these sounds together, specifically because of a contract with EMI to produce the background music for Shakespeare plays. Neve created a mixer that was a truly unique, custom-designed piece of equipment, and not saleable to anyone else.

In 1961, a new opportunity presented itself: the advent of the pop music scene in London. One of Neve's very early clients was Leo Pollini of Recorded Sound in London, for whom he designed and built two valve consoles.

By 1964, Rupert Neve had already developed high-performance transistor equipment that replaced the traditional valve designs. The first client for the new transistor equipment was Phillips Records Ltd.

Neve was commissioned to design and build a series of equalizers to enable his clients to change the musical balance of material that had been previously recorded. This was before the days of multi-track tape machines. The success of the equalizers led to orders from Phillips and other recording studios for mixing consoles. These attained a reputation for excellent workmanship and sonic clarity. Demand grew rapidly.

After a few years, Neve Channel Amplifiers comprised a range of high-performance input amplifiers available for use on Neve sound control consoles, which incorporated alternative arrangements of filter and frequency response curves. These amplifiers were designed to accept signals from microphone and line sources and raise them to a level suitable to work in the main mixer circuit. Important features: low noise & distortion and generous overload performance. The first one was the 1053 and many more followed, with changes in the selectable band frequencies and in components.

Designed in 1969, the 1063 was the first Neve channel amp to use the beloved red/grey/blue knobs that became one of the distinct images of Neve. The 1063's equalizer was a simple 3-band affair consisting of high and low shelves with a bell mid band. The shelves used a Baxandall type design providing a High Shelf at 10kHz and a Low Shelf selectable between 35, 60, 100, and 220Hz. These Shelf EQ bands provided a boost/cut range of +/- 16dB. The Mid band was an inductor-based Bell (also called Peak) design allowing choices of 700Hz, 1.2, 2.4, 3.8, and 7kHz with a boost/cut range of +/- 18dB.

Baxandall tone control circuits were named after Peter Baxandall, an English audio engineer who first came up with this type of circuit in the 1950s. They are characterized by sweet sweeping curves in the bass and treble shelf EQs (these were even named Baxandall curves) that give a broad yet musical adjustment. The slope is lower than what was usual, and that contributes to the curves sweetness, since they sound smoother and more natural.

The variable bands of the 1063 featured a dual-concentric control set with an aluminum outer ring to select the frequency and an inner plastic knob to control the amount of boost or cut.

Rounding off the features of this channel amp is an inductor-based high-pass filter with a slope of -18dB per octave and selections of 50, 80, 160, and 300Hz. There are also two button switches at the base of the front panel, one to engage or bypass the EQ and the other to invert the signal phase.

The basic functionality of the 1063 module set a precedent for all future class-A Neve channel amps in that most subsequent models included a mic/line preamp, 3 band EQ and filter(s).

The 1063 was quickly followed by the 1064, which was similar in functionality, though it provided separate mic and line inputs, each with their own input transformer (10468 for mic and 31267 for line). The three-band EQ featured the same Baxandall high/low shelves and inductor-based peaking midrange design as used on the 1063, though frequency selection was a bit altered: 10kHz on the High Shelf, 700Hz, 1.2, 2.4, 3.6, and 7kHz in the Midrange Bell (usually called Presence) and 35, 60, 100, and 220Hz on the Low Shelf. Instead of pots for the cut/boost controls the 1064 used rotary switches for stepped (and recallable) functionality.

The HPF of the 1064 was switchable at 45, 70, 160, and 360Hz, instead of the 50, 80, 160, and 300Hz of the 1063.

The Neve 1066 was another milestone in Neve channel amplifiers. Again, it had the traditional 3-band EQ, featuring High Shelf with a fixed frequency of 10kHz and boost/cut of +/- 16dB, Midrange Bell, called Presence as usual in the Neve devices, with selectable switching frequencies of 700Hz, 1.2, 2.4, 3.6, and 7kHz and a boost/cut of +/- 16dB, and Low Shelf with switchable fixed frequencies of 60, 100, and 220Hz and again a boost/cut of +/- 16 dB. According to Neve, the shapes of the curves and the frequencies were carefully chosen to give the maximum possible flexibility in high quality recording.

In addition, and as it had became customary in Rupert Neve designs, a high-pass filter was added, with a slope of -18dB per octave and a choice of cutoff frequencies of 20, 45, 70, 160, and 360Hz.

Also, the usual two button button switches to turn On or Off the EQ circuit and to invert the phase were added.

The Neve 1073 follows this design closely (actually, we can say the 1073 is the 1066 with different frequencies). With the exception of the switchable frequencies of each of the three EQ bands, the internal circuitry, in terms of transformers and amplifiers, was identical. Somehow, the 1073 became the most popular.

So, the EQ section of the Neve 1073 comprised the usual three bands: High Shelf with a fixed frequency of 12kHz, and a boost/cut of +/- 16dB; a Low Shelf with selectable frequencies of 35, 60, 110 and 220Hz, again with a boost/cut of +/- 16dB; and a Midrange Bell (Peak) with fixed bandwidth and selectable center frequencies of 360Hz, 700Hz, 1.6k, 3.2k, 4.8k and 7.2kHz.

The 1073 also had a High Pass Filter with a slope of -18dB per octave, and frequencies switchable between 50, 80, 160, and 300Hz, as well as the two button switches for EQ On/Off and phase inversion.

It is this last famous preamp and EQ that Arturia is now recreating.

1.1. Arturia's secret ingredient: TAE®

TAE® (True Analog Emulation) is Arturia's outstanding technology dedicated to the digital reproduction of analogue circuits used in vintage synthesizers.
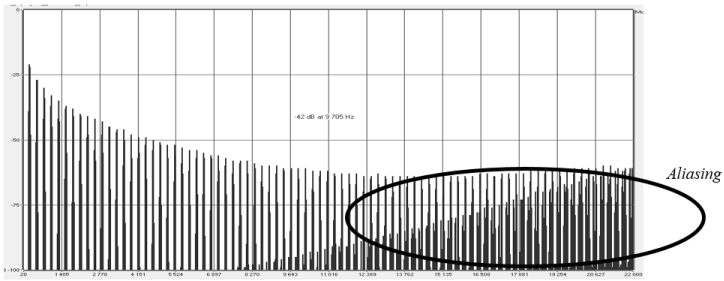
Linear Frequency spectrum of a well known software synthesizer

TAE®'s software algorithms result in spot-on emulation of analogue hardware. This is why 1973-Pre offers an unparalleled quality of sound, as do all of Arturia's virtual synthesizers and plug-ins.
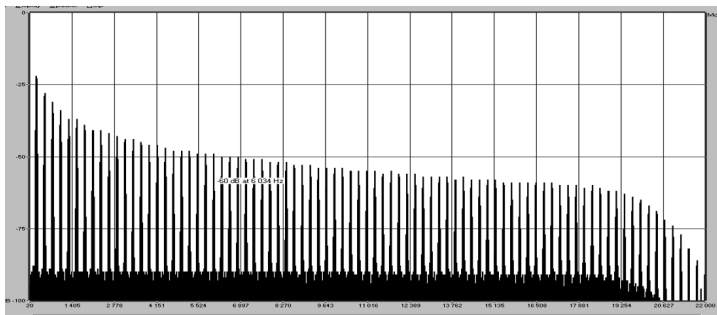
Linear frequency spectrum of an oscillator modeled with TAE®

TAE® combines major advances in the domain of synthesis:
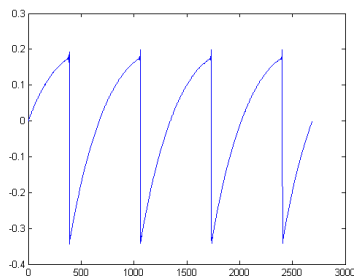
Temporal representation of the "sawtooth"
waveform of a hardware synthesizer
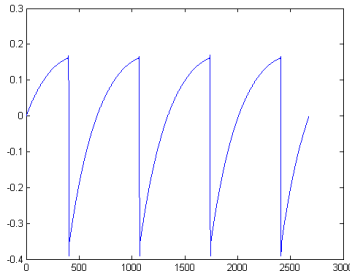
*Temporal representation of a "sawtooth"
waveform reproduced by TAE®*

1.2. Arturia's 1973-Pre

So, what is and what do we get with the 1973-Pre preamp and EQ plug-in?

The goal of Arturia was to model the sound of this famous and well sought-after vintage preamp and EQ unit, definitely one of the most famous and revered, as well as add some new features that are helpful in a modern workflow.

Therefore, we have the amplification circuit, and a 3 band EQ with High Shelf, Mid Bell (Peak) and Low Shelf bands, and High Pass Filter. The EQ in the plug-in version has sweepable frequencies for the filter, the Low Shelf and the Midrange Bell. Only the High Shelf kept the fixed frequency of the original. This gives the plug-in much more flexibility in the EQing, while preserving the great sound that was the main characteristic of the original Neve 1073.

We also have some other changes, like for example two transformer types (the original Neve 1073 was a Class-A). The first transformer keeps the original sound of the original Neve amplifier, while the second is a novelty introduced by Arturia to give the users some sound variation, based on another famous piece of vintage equipment.

The plug-in has Single Channel and Dual Channel versions, or configurations. The Dual Channel configuration can work in three different modes. The default mode is Stereo, which means the Stereo Link button is On and the Stereo Mode switch is in the L/R (Left/Right) position. When we change this switch to the M/S position, the plug-in enters the Mid/Side mode. This automatically disables (turns Off) the Stereo Link button.

When the Stereo Link switch is Off, and the Stereo Mode button is in the L/R position, the plug-in is in Dual Mono mode. In this mode each channel works independently, which means we can have the EQ switched On in one channel and Off in the other, for example, and the phase switched On in one and Off in the other.

2. ACTIVATION AND FIRST START

1973-Pre works on computers equipped with Windows 7 or later and macOS 10.10 or later. You can use the 1973-Pre as an Audio Unit, AAX, VST2 or VST3 plug-in.

2.1. Activate the 1973-Pre license

Once the software has been installed, the next step should be to activate your license, so that you can use it without limitations.

This is a simple process that involves a different software program: the Arturia Software Center.

2.1.1. The Arturia Software Center (ASC)

If you have not already installed the ASC, go to this web page:

https://www.arturia.com/support/updates&manuals

Look for the Arturia Software Center at the top of the page, and then download the version of the installer that you need for your system (macOS or Windows).

Follow the installation instructions and then:

- Launch the Arturia Software Center (ASC)
- Log into your Arturia account
- Scroll down to the My Products section of the ASC
- Click the Activate button

That's all there is to it!

2.2. Initial Setup

2.2.1. 1973-Pre as a plug-in

1973-Pre comes in VST2, VST3, AU and AAX plug-in formats for use in all major DAW software such as Live, Cubase, Logic, Pro Tools and so on. You can load as many instances as you find useful, and you will also find some other useful features:

- You can automate numerous parameters using your DAW's automation system;
- Your settings and current plug-in state will become recorded in your project, and you can pick up exactly where you left off the next time you open it.

2.3. Quick Start: A basic patch

The patch below is an ideal starting point for getting to know the 1973-Pre plugin. We will use the sequencer to modulate the saturation (drive) and the EQ amount of one or two bands. It illustrates how you can use 1973-Pre to process sound. The example below was tested in Cubase Pro, but it will work in a similar way in other DAWs.

Please load the default factory preset. This ensures that you have all knobs in the correct starting position.

Let's give it try:

- Load a four-beat clip into an audio track in your DAW (a drum track is ideal for testing the EQ and the saturation of the preamp).
- Load an instance of 1973-Pre as an insert on that same track.
- Make the interface of the 1973-Pre visible by clicking its name in the Mixer.
- Now start your DAW and play the loop. It will sound the way it was recorded. By default, all parameters are in a neutral position. There is still some minor harmonic distortion, but that's OK with our demonstration.
- Set the Input Level to -50 and observe what happens on the VU meters; if a dot signal appears on the right, the Input Level may be too much. Although harmonic distortion can be used as a sound design tool, you may want to reduce that level. By raising the Input Level, you just added some saturation to your signal.
- Now increment the High Shelf. Remember that this band is set to a relatively high frequency (12kHz). So, just give it a little boost (maybe 1dB). This will give your mix a little more "air".

1973-Pre configured to add some "presence" to the sound

- You may also want to give it a little more presence. This may be achieved by boosting the mid frequencies. Try using the Midrange Bell band for this (remember that we said it was even called "Presence" in the original). For better results, you first have to change the base frequency to a higher value (maybe around 1.6k). Since this is a sweeping control, you can adjust it later to find your "sweet spot".

- Now give this band a boost of 3dB, for example. Always pay attention to the VU meters and the volume in your DAW, to be sure you are not overloading it (and listen to the results too, of course).

- You can now experiment with the Bass Drum, using the High Pass Filter and the Bass Shelf band. As soon as you switch on the High Pass filter, you will probably notice that the Bass Drum sounds weaker than before.

- Now choose a frequency in the Low Shelf EQ (maybe between 60 and 110Hz) to boost frequencies around that point. The Bass Drum will now appear more prominently, but with a different timbre.

- When you conclude that the the parameter settings have achieved the desired sound, it's time to define some MIDI modulation. For that, you need to click the MIDI icon in the right side of the upper toolbar.

1973-Pre ready for MIDI learning. Notice the MIDI control setup window over the selected control, which is already assigned (when assigned, the color changes to red).

- Now, many of the controls in the 1973-Pre become purple, which means they are ready to "learn" MIDI automation controls.

- Click the Boost/Cut knob of the Mid Bell band. A pop-up window like the one in the picture above will appear.

- Now move the controller knob/fader you want to use to control that parameter. If the connections are well established, you should see the parameter assigned to the Input Level. If your controller is able to, and the control you selected is of the right type, you should select "Is Relative", to make sure that when you touch that parameter the control will not jump suddenly. For more information about this feature, refer to the section Relative Control option [p.14] in the USER INTERFACE chapter.

- Now select the Input Gain of one channel. Repeat the operation above, for the knob to "learn" which MIDI control it should respond to.

- Remember that, since we are working in Stereo Mode (the Stereo Link button is On) any changes made on one channel will be reflected on the other as well.

3. USER INTERFACE

The 1973-Pre is packed with great features, and in this chapter we'll take a tour and show you what it can do. We think you'll be amazed by the range of audio processing options this plug-in is capable of.

This plug-in is more flexible than you probably would expect at first sight, due to the relative simplicity of its User Interface. That will always be the main focus of every Arturia product: to unleash your creativity while remaining easy to use.

3.1. The Control Panel

We will have a detailed look at the Control Panel in the Control Panel chapter [p.28].

3.2. The Toolbar

The plug-in GUI (Graphical User Interface) has the usual Arturia toolbar that runs across the top edge, with the Arturia logo / plug-in name on the left (the colored part), followed by the Library button, the Library selection filter button, the Preset name on the center, and the MIDI button on the right. This toolbar is common to all current Arturia plug-ins, and gives access to many important functions. Let's look at them in detail.

The first seven of these options can be found by clicking on the Arturia 1973-Pre button at the top left-hand corner of the plug-in window. Since these options are also common to all current Arturia current plug-ins, they may be already familiar to you.

3.2.1. Save

This option will overwrite the active preset with any changes you have made, so if you want to keep the source preset also, use the Save As option instead. See the next section for information about this.

3.2.2. Save As...

If you select this option, you are presented with a window where you can enter information about the preset. In addition to naming it, you can enter the Author name, and select a Type. You can even create your own Type, by entering custom names in the respective place. This information can be read by the preset browser and is useful for searching the preset later.
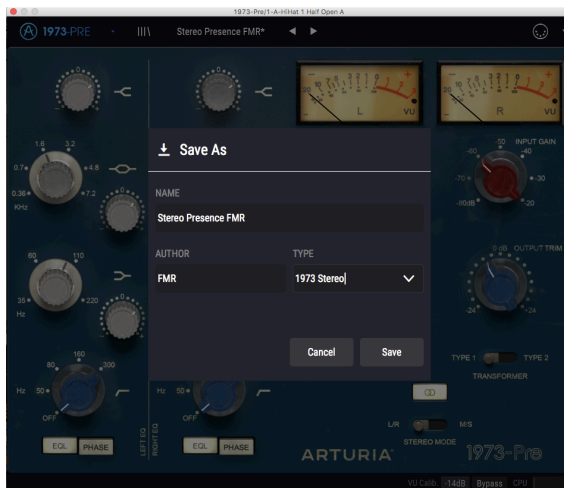
3.2.3. Import Preset

This command lets you import a preset file, which can be either a single preset or an entire bank of presets. Both types are stored in .1prx format.

After selecting this option the default path to these files will appear in the window, but you can navigate to whichever folder you are using to store presets.

3.2.4. Export Menu

You can export presets in two ways: as a single preset, and as a bank.

- **Export Single Preset:** Exporting a single preset is handy when you want to share a preset with someone else. The default path to these files will appear in the "save" window, but you can create a folder at another location if you like. The saved preset can be reloaded with the import preset menu option.
- **Export Bank:** This option can be used to export an entire bank of sounds from the instrument, which is useful for backing up or sharing presets.

3.2.5. Resize Window options

The 1973-Pre window can be resized from 60% to 200% of its original size without any visual artifacts. On a smaller screen such as a laptop, you might want to reduce the interface size, so it doesn't dominate the display. On a larger screen or a second monitor, you can increase the size to get a better view of the controls. The controls work the same at any zoom level, but they can be harder to see at the smaller magnification values, or when using high resolution monitors (like HD monitors or higher). The higher the resolution, the bigger the size that should be used.

3.2.6. Preset Selection

The Preset browser [p.17] can be opened by clicking the library symbol on the toolbar. The filter, name field and left / right arrows in the toolbar all assist with preset selection.

3.3. MIDI Learn assignment

The MIDI plug icon at the far-right side of the toolbar places the instrument in MIDI learn mode. MIDI-assignable parameters will be shown in purple, which means you can map physical controls to those destinations inside the instrument. A typical example might be to map a real expression pedal to the Output Trim control, or knobs and faders on your controller to the different virtual knobs and switches of the plug-in.

MIDI Learn assignment mode in the 1973-Pre

In the image above one of the parameter control knobs is red. That means it has already been assigned to an external MIDI control. It can be reassigned, though.

> ♪: Remember that you can also assign the Preset Forward and Backward arrows to an external control.

3.3.1. Assign / Unassign controls

If you click on a purple area, you'll put that control into learning mode. Move a physical dial, fader, or button and the target goes red, indicating that a link has been made between the hardware control and the software parameter. There's a pop-up window that displays which two things are being linked and an Unassign button that will disconnect the two.

3.3.2. Min / Max value sliders

There are also minimum and maximum value sliders that you can use to restrict the parameter change range to something other than 0%-100%. For example, you might want the Output Volume knobs to be controllable via hardware from 30% to 90%. If you make this setting (Min set to 0.30 and Max set to 0.90) your physical dial will be unable to alter the volume lower than 30% or higher than 90%, no matter how far you turn it. This is very useful to prevent you from accidentally making the sound too quiet or too loud when controlling it in real time.

In the case of switches which only have two positions (On or Off – like the LOW PASS and HIGH PASS switches), those would normally be assigned to buttons on your controller. But it is possible to toggle those with a fader or other control if you like.

3.3.3. Relative Control option

The final option in this window is a button labeled "Is Relative". It is optimized for use with a specific type of control: one which sends only a few values to indicate the direction and speed at which a dial is turning, as opposed to sending a full range of values in a linear fashion (0-127, for example).

To be specific, a "relative" dial will send values 61-63 when turned in a negative direction and values 65-67 when turned in a positive direction. The turn speed determines the parameter response. Refer to the documentation of your hardware controller to see if it has this capability. If so, be sure to switch this parameter on when setting up its MIDI assignments.

When configured this way, movements of the physical control (usually a dial) will change the software parameter by starting at its current setting, rather than being an "absolute" control and snapping it to some other value as soon as you start to move it.

This can be a great feature when controlling things like volume, filter, or effect controls since you won't usually want them to jump noticeably from their current setting when they are modified.

> ♪: Pitch Bend, Mod Wheel and Aftertouch are reserved MIDI controllers that cannot be assigned to other controls.

3.4. MIDI controller configuration

There's a small arrow at the far right-hand side of the toolbar (after the MIDI icon) that deals with MIDI controller configurations. This allows you to manage the different sets of MIDI maps you may have set up for controlling the instrument's parameters from MIDI hardware. You can copy the current MIDI assignment setup or delete it, import a configuration file or export the currently active one.

This is a quick way to set up different hardware MIDI keyboards or controllers with 1973-Pre without having to build all the assignments from scratch each time you swap hardware.

Note the check mark on the bottom of the menu: that indicates that the configuration with that name is the one currently active. Empty means that there's no configuration loaded.

3.5. The lower toolbar

When you are changing a parameter, you will see a readout showing the value or state of whatever control you are modifying at the left-hand side of the lower toolbar. It will also display the current value of a parameter when you place the mouse pointer over that parameter control in the control panel. This is handy, because you don't need to touch the parameter control to read the current value.

At the right-hand side of the lower toolbar are several small windows and buttons. These are very important features, so let's take a closer look at them.

3.5.1. VU Calibration

The 1973-Pre has two VU meters (one when in Single Channel mode) at the top-right of the control panel. By clicking this button, we can access a menu where we can calibrate their response. By default, they are calibrated for -18dBFs but we can change this to -14dBFs or -8dBFs.

3.5.2. Bypass

This one is obvious. Activating the bypass option will disable 1973-Pre processing.

3.5.3. CPU meter

The CPU meter is used to monitor how much of your computer's CPU is being used by the plug-in. If you stress your computer too much, the global performance of your system and the audio may suffer.

3.6. The Preset browser

The preset browser enables you to search, load and manage preset configurations in 1973-Pre. Although this looks and is based on the usual Arturia Preset Browser, it is simpler, and even easier to work with. You access the preset browser by clicking on the library symbol next to the Arturia logo on the left.
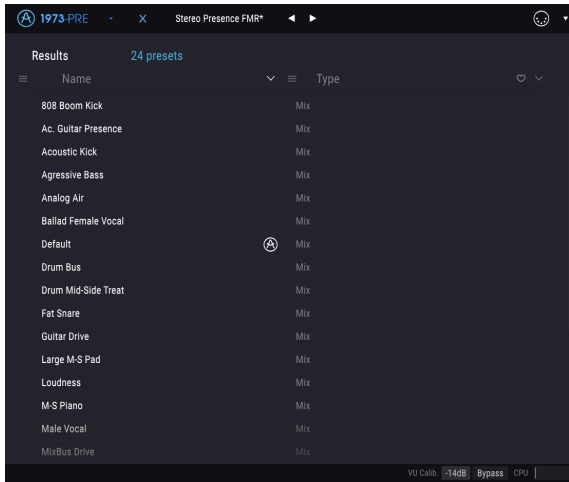
When you click on the library symbol, you will see a screen with all the Presets you have saved. You can sort the list by several different criteria, to make it easier to find the right preset. There are two columns. The first one lists the Presets by Name or by "Featured". Featured are presets that were classified as important by Arturia. The second one lists the Presets by Type, or Designer.

There is only one attribute visible, which is the one you select by clicking the column title. By default, Type is the attribute selected. When you select the Designer attribute, the list changes, and that attribute appears in the second column, in the place where the Type field was before.

If we want to delete a preset, we may do that by selecting it, and then, by clicking in the name field, choose the option "Delete current" that's in the bottom of the list.

4. 1973-PRE OVERVIEW

As we said already in the Introduction, the Neve mixer channels (preamps and EQs) have become industry favorites since the time he made the first EQ units for Philips in 1964.

Neve circuits usually employed a simple 3-band EQ, consisting of high and low shelves with a bell mid band. The shelves used a Baxandall type design providing a High Shelf with a fixed frequency and a Low Shelf with some selectable switching frequencies. These Shelf EQ bands usually provided a boost/cut range of +/- 16dB. The Mid band usually had an inductor-based bell design with also a fixed number of selectable switchable frequencies, and a boost/cut range of +/- 18dB.

To complete the set, a High Pass filter was also added, again with a choice of several switchable fixed frequencies.

This was also the design of the celebrated Neve 1073 that was the basis of the present Arturia emulation. However, some modifications were introduced.

The most notable is the changing of the Midrange Bell and Low Shelf bands from switchable to sweepable. This allows a much wider range of choices, since we can now use ANY frequency within the range of both EQ bands.

In addition to these, the High Pass filter also has sweepable selectable frequencies between the lowest and the highest. Only the Off point is a switch.

The plug-in works as a Single Channel or as a Double Channel, according to the audio channel it is inserted on. In Single Channel we just have Mono mode, but in Double Channel, we can use the plug-in in Stereo mode, Mid/Side mode and Dual Mono mode.

4.1. What is a preamp?

A preamplifier (preamp or simply "pre") is a device that takes care of the first stage of amplification. It is usually designed to boost a weak electrical signal to "working level", to make it strong enough to be noise-tolerant and for further processing, for example in a mixing desk. The working level is usually called "line level".

Many of us probably still remember the days of vinyl records. Vinyl records were played by turntables, a device which had an output with a completely different impedance than, for example, a tape recorder. The turntable output signal was much weaker. To drive it to a level strong enough to be audible meant that it had to pass through a circuit that would amplify it to a level where it could be passed to the main audio amplification circuit. More than that, the circuit also had to transform the tone, in order to decode the special RIAA encoding tone curve. Without this previous stage, the signal would be weak and distorted harmonically.

This circuit was (is) a preamplifier, and was usually part of any Hi-Fi amplifier (those special inputs labeled "phono", which seem to be coming back as of lately). It should be mentioned that Arturia's AudioFuse audio interface also features a microphone preamp circuit, and it even features the special RIAA preamp we just mentioned.

But there are other kinds of preamplifiers, that do other things. The preamp devices that brought us to this point are those typically used to amplify signals from audio sources such as microphones and instrument pickups. Because of this, preamplifier circuits are now usually built into the audio mixers (and are included in many computer audio interfaces too).

But it wasn't always like this. There was a time when preamps were separate units that received the signal from microphones and delivered it to the mixing circuit. The Telefunken V76 was one of those units. Then they became modules that could be plugged into those mixers (like the Neve units). Now, they are simply standard equipment. But there are still many other devices that use preamp circuits besides mixers, as electric guitar and bass players know very well.

4.2. What does a preamp do?

A preamp usually is designed and used to do one or more of the following actions:

- Increase the gain from an audio source (for example a microphone)
- Changing the tone (by using filters, for example)
- Lowering the output impedance
- Converting from unbalanced to balanced

One of the most important controllers in a preamp is Gain. Gain just means the amount your signal level is increased by the circuit. The amount a specific preamp increases your gain is of utmost importance, because every device your signal will be sent to (in our case probably the mixer) has an ideal range of signal level it expects in order to operate best. Not every preamp can effectively drive a power amp, for example. The preamps we are looking into were usually built to feed the mixing circuit, therefore they usually had a fixed gain amount.

Impedance can be described as the efficiency of the signal transferring from one piece of gear to another. It is the opposition of a circuit to the flow of alternating current, a result of the complex sum of resistance and reactance. A good illustration of this is cycling uphill. If you are in the right gear, pedaling requires some energy; but if you are in the wrong gear, it requires a lot more energy. An ideal impedance relationship is a very low output impedance device connecting to a very high input impedance device. That is being "in the right gear". If your instrument or device has an output impedance that is too close to the input impedance of the device you're connecting it to, you will be "in the wrong gear", and your signal will be too weak. That weakness may result in a lower signal level and/or a dull tone.

Preamps are usually "active", meaning they require a power supply. This is because it requires energy to boost a signal. Currently, the preamps get the energy from the main power circuit of the mixer. Older preamps like the V76 had their own power circuit built-in.

A balanced circuit is a signal-carrying circuit with two active electrical conductors of equal impedance with respect to a common reference point, which is usually ground. Each conductor carries the signal with a polarity that's the inverse of the other one. Usually, both conductors are enclosed within an overall metallic shield, which does not carry the signal.

Balanced circuits can be found on professional-level microphones, XLR inputs on a mixer, and balanced connections between an amplifier and speakers. The advantage of these circuits is that the two signals are going to be decoded in the destination (remember they were polarity-inverted), and the audio signal will be the difference between the two identical signals. Any interferences picked up in transit will presumably not be polarity-inverted, and therefore will have little to no difference between the channels. These will be eliminated, resulting in an interference-free signal.

An unbalanced circuit is a signal-carrying circuit with only one electrical conductor and an overall metallic shield. It is usually used in domestic connections, like Hi-Fi, for example. Although there will be little to no problem in closer connections (input and output are near to each other, therefore minimizing the risk of possible interferences), they would be problematic in longer connections (a long wire basically works like an antenna).

That's why when we use microphones or other sound sources that are distant from the mixer, we have to use balanced connections, and when they don't have them, we have to connect them to a closer device that will convert the signal from unbalanced to balanced.

4.3. What is an EQ?

The equalizer allows you to cut or boost any frequency, or group of frequencies, within the audio spectrum.

It was one of the first signal processing devices to enter a recording studio. Actually, even the old domestic radios had some kind of EQ built-in. Usually, besides the control for the volume, we also had a control for the Bass and another for the Treble. These Bass/Treble EQs were also usual in Hi-Fi amplifiers.

Of course, in a studio the devices are more complex than that, and usually have more controls. But in the beginning they didn't have many of those, either.

4.4. What does equalization do?

Equalization usually is used to correct a sound timbre and its harmonic balance. We can use EQ, for example, to correct a particular sound in a mix, allowing it to "breathe" by boosting the frequencies that are more important, and sometimes also by decrementing those same frequencies in other instruments.

We may also use it as a creative tool, for example by manipulating the timbre of a certain instrument to better match another one during overdubs, or (again) to better fit in the whole mix.

We can finally use equalization to position an instrument in a three-dimensional stereo image, increasing the separation between the different timbres.

Of course, this comes at a price, and the price is that every time we adjust frequencies we create some phase shifting and discrepancies that may deteriorate the original sound.

It's up to us to balance the use of equalization, in order to get a final result that sounds good and musical. Like with almost everything, EQ must be used only when and where it's necessary.

4.5. The 1973-Pre preamp and EQ plug-in

The Arturia 1973-Pre plug-in is both a preamp and an EQ. This means that it works not only as an amplifier section, which induces a natural and pleasant saturation to the sound, but also has an equalizer to further sculpt the spectrum content.

That said, if we are going to use the 1973-Pre EQ and preamp plug-in, we must be aware that this is a device with a strong coloration, and that is its main strength. More than an EQ, of which we may have better and more precise units available, this plug-in is justified by the changes it makes in the timbre, which have been highly praised by audio professionals for many decades now. So, although it is still considered a very musical EQ, the main reason to use it will be the desire to achieve the sound of a classic.

4.5.1. Signal Flow

The signal flow of the 1973-Pre follows the logical path for this type of devices. Therefore, the audio enters through the preamp section, controlled by the Input Gain knobs. This section adds saturation and harmonic distortion to the signal.

The Transformer switch on the right, which allow us to change the type of transformer in use, will have a slight impact on the kind of induced saturation and harmonic distortion produced by the plug-in.

After this stage, the signal enters the EQ section, where it will be further transformed by boosting or cutting groups of frequencies. Besides the three EQ bands, this section also features a filter to cut the lower range of frequencies (High Pass).

The signal is then directed to the main output, where we have the Output Trim knobs to control the final level.

There is a switch on the bottom of the EQ section to invert the phase of the audio (globally), and another that allows bypassing the EQ section.

Stereo Link and Stereo Mode are two global switches that affect the way signal is routed and processed when in Double Channel, as explained below.

4.5.2. The EQ section

The EQ section allows three frequency bands at any one time, with sweepable values on the Midrange and Low bands, while the High band has a fixed frequency. So, we have a hybrid EQ, with two semi-parametric bands (a fixed Q or bandwidth factor, and selectable/sweepable frequencies and boost/cut values). This goes beyond the original, which had switchable fixed frequencies for both the Midrange and the Low bands, while the High band had a single fixed frequency.

Another word about the type of filter slope we have on each band: High and Low bands have a Shelf filter, while the Midrange has a Bell (Peak) filter. For those not familiar with this, the differences are as follows:

A Shelf band boosts (or attenuates) all frequencies equally, above or below a certain point. The frequency specified for a Shelf equalizer circuit is usually the point where it effectively reaches its "shelf" state. A High Shelf EQ band boosts or cuts high frequencies and a Low Shelf EQ band boosts or cuts low frequencies.

This is the type of circuit that's used in Hi-Fi systems, but is also highly musical when applied in a recording environment.

On the other hand, a Bell (Peak) EQ band is one that, as its name implies, has a center frequency around which the boost or cut happens. The bell name derives from the type of curve drawn by the filter. The frequency range over which it reaches its bell peak and then falls down is known as the bandwidth (or Q).

Because this design reaches a peak and then falls away, it is possible to focus on a particular area of frequencies and make adjustments on that, without affecting those around them. This can be particularly useful when working with instruments such as guitars, snare drums, or any kind of acoustic instrument that has a limited spectrum range. However, that's not exactly what we will get with the 1973-Pre EQ.

1973-Pre Double Channel EQ section

The 1973-Pre EQ has two Shelf bands, which will take care of boosting or cutting the high and low frequency content of the audio. The midrange band has a broad range of selectable frequencies. All three EQ bands have a relatively large and smooth bandwidth (read what we wrote about the Baxandall curves in the introduction [p.2]).

So, in what concerns the Midrange Bell, this band is more about boosting or cutting the mids in general than about precisely sculpting a short range of the frequency spectrum. Actually, it was labeled Presence in the original, and that gives a pretty good idea of why it was dreamed of, designed, and what it does. It changes the globally perceived "presence" of the audio by altering the midrange content, but with a relatively large and smooth bandwidth.

Each of the three EQ bands has a separate rotary knob to control the boost or cut. We can apply a boost or cut of up to 18dB, which is actually more than the original High and Low Shelf could achieve in the original. So, to get a behavior closer to the original, we should limit the boost or cut in those two bands a little (actually, we doubt anyone would feel the need to use a boost or cut of 16db). Anyway, mixing is about sound, and the best way to judge that is to use our ears: Focus on the sound and use the EQ boost or cut at will.

Besides the boost/cut knob, the Mid Bell and the Low Shelf have another knob to control the base frequency (the High Shelf frequency is fixed at 12kHz). Unlike the original, which had a fixed number of switchable frequencies, here we can sweep to any value within the ranges defined by the lower and the higher frequencies. So, the Mid Bell can sweep between 360Hz (labeled 0.36) and 7.2kHz, while the Low Shelf can sweep between 35Hz and 220Hz. This gives the EQ section more flexibility than was available in the original.

The High Pass Filter complements the three band EQ. It has a slope of -18dB per octave, and a range of frequencies that goes from 50Hz to 300Hz. Curiously enough, the range of filter frequencies completely covers the range of frequencies of the Low Shelf EQ band, so pay attention when using it. Although the original also had a fixed number of switchable frequencies, here we have a sweepable filter that covers all frequencies within the minimum and maximum.

On the bottom of the EQ section, we have two switches. The left switch turns the EQ section On or Off, and is On by default. The other switch is for Phase inversion, and is Off by default.

4.5.3. The preamp section

The preamp section has knobs (potentiometers) for the Input Gain, adjustable between -80 dB and -20 dB, positioned right below the VU meters.

By adjusting the input gain, we change the color of the sound by adding harmonic distortion and saturation. Even at minimum input gain with EQ off, there is a very slight coloration as you would find on the original.

1973-Pre Single Channel Preamp and Output

Right below these we have another pair of knobs to control the Output level (labeled Output Trim), with a range between -24dB and +24dB.

We also have a switch that lets us choose between two different types of transformers. This is an add-on introduced by Arturia. Type 1 is the original transformer, while Type 2 is a different model, inspired by another famous brand of vintage equipment. The difference is subtle. Try each of them and use the one you like best for your audio.

When operating in double channel (two channels) the plug-in has two other switches. The first one is to activate/deactivate Stereo Link (the label is two intersecting circles). The second one is labeled Stereo Mode, and switches between L/R and M/S.

With these two switches, we can choose between the three modes the plug-in works on when in Double Channel configuration: Stereo, Mid/Side or Dual Mono.

Stereo mode is achieved only if the Stereo Link button is On and we have the second switch in L/R (Left/Right) position. In this mode, any changes we make to one channel are reproduced in the other channel as well.

If we switch the Stereo Link to the Off position, we enter the Dual Mono mode. In this mode, each channel works independently, as if we had two mono channels.

There is a third mode that is activated by changing the Stereo Mode switch to the M/S position. This mode is called Mid/Side, and in this mode, although we are still in Stereo, the channels work in a way that is completely different than the traditional Left/Right way. For this mode each channel has to be independent, which is why the Stereo Link button is automatically switched Off when we select M/S.

4.5.4. Mid/Side mode

Mid/Side mode is a highly effective way of making adjustments to the spacialization of a mix or master. In Mid/Side, the Mid channel is the center of a stereo image, while the Side channel is the edges of that same image. When we make adjustments in the Mid channel, this is perceived in the centered image of the stereo spectrum (we can think of it as the mono compatible image). For example, a boost in the Mid channel will make the sound more "mono" (both channels will sound more equal).

On the other hand, when we make adjustments in the side channel, this will have an impact on the width of the stereo image, and a boost in this channel will be perceived as a more spacious (wider) stereo sound.

For M/S purposes, the controls on the left side will affect the Mid channel, while the controls on the right side will affect the Side channel. Also, when in M/S mode the VU meters show the output level of the Mid for the first one (Left), and the output level of the Side for the second one (Right).

While we're at it, there is a simple test that you can run to check the differences between stereo, Dual Mono and mid/side processing. Here are the steps to do it:

- Load your favorite DAW;
- Create a new project, and create a stereo audio track;
- Load a stereo clip in that track. A full mix or a sub-mix would be better for the test we want to do;
- Load an instance of 1973-Pre as an insert in that track. Open the 1973-Pre window;
- Check that you have the Default preset loaded. You should have the plug-in set for Stereo, with the Stereo Link button On, Input Gain at -8OdB, Output Trim at OdB, and all EQ settings at their default values (which means that, with these settings, the influence of 1973-Pre in your track should be neutral);
- Start the DAW. The stereo clip should sound as you recorded it. You may check by clicking the Bypass button in the lower toolbar and compare;
- You may try some processing, just to check if the 1973-Pre is working. For example, you may raise the Input Gain to add some saturation (you will not perceive any change in the overall volume, due to a feature called Autogain Compensation), and boost the High Shelf by turning its knob to +3dB (this will give a little more "air" to the mix, by reinforcing the high frequencies);
- You may also turn the High Pass Filter to the 45Hz setting. This will cut the bottom lows;
- Now press Bypass again. You will already be able to notice some differences in the mix. You probably also noticed that each time you made a change in one channel it was reflected in the other. This is because we are working in Stereo mode (the Stereo Mode switch is on the L/R position, and the Stereo Link button is On);

- We will now work in M/S mode. To do this, we'll click the Stereo Mode button to toggle it to the M/S position. The Stereo Link button should automatically turn Off. The 1973-Pre is now in M/S mode;
- Since no controls have changed, we will not notice any changes in the audio, for now;
- Let's turn one of the Output Trim knobs to the minimum (-24dB) position. We'll start with the left, which is now the Mid channel;
- Since we reduced the output of the Mid channel by 24dB, we are now listening to a very different signal. We almost have no signal in the middle of the spectrum, and are only left with sound in the edges of the spectrum band (which are controlled by the Side channel). You may even want to try this with headphones, which will give you an even better perception;
- Double click left Output Trim knob. It will return to its default position, and the sound will return to "normal";
- Now let's reduce the output of the Side channel, by turning the right Output Trim knob all the way to the left (-24dB position). Now, we almost have no signal in the edges of the spectrum signal (which are controlled by the Side channel) and are left with what is almost a mono signal (the Mid channel);
- Note that even though we turned each of the two channels almost off, we still got sound on both left and right speakers. This is because we are making changes in the stereo spectrum and not in the Left or Right channels alone;

- Double click the right Output Trim knob. It will return to the default position, and the sound will be back to "normal" again;
- Now, while leaving the Stereo Link button Off, toggle the Stereo Mode button again to the L/R position. The 1973-Pre is now in Dual Mono mode;
- In this mode, Left and Right channels are completely independent - they work as if they were two mono tracks;
- Now turn the left Output Trim knob again to the -24dB position. You'll notice that, this time, the sound on the left speaker will decrease to almost silence, while the right will remain as it was;
- Double click on the left knob, and do the same with the right knob. This time, the right speaker will become almost silent, while the left one will play unaltered. Double click the knob again, to get it back to the default position;

And with this last action, we have concluded our test. By now, you hopefully became familiar with the three working modes of the 1973-Pre in double channel configuration, and will have a clear idea of what you can do in each of them.

5. 1973-PRE CONTROL PANEL

The 1973-Pre plug-in can be used as a Single Channel (mono) plug-in or as a Double Channel plug-in. When in Double Channel, we can use it in the traditional Stereo mode (Left/Right) or the special Mid/Side mode (M/S) which we described earlier. We can also use it as a Dual Mono device (each of the two channels works independently).

When in Single Channel configuration, the plug-in has just one column of EQ controls, and the preamp section also has fewer controls. The Single Channel configuration is automatically loaded when we use the plug-in with mono tracks.

5.1. Single Channel (Mono)

5.1.1. Single Channel EQ Section

When working in Single Channel, we have only one column in the EQ section, and a simpler preamp section. This is the configuration that's closer to the original Neve 1073, which was mono. So, let's take a look at all the controls.

The EQ section of the 1973-Pre is very simple and straightforward. It's a classic three-band EQ, with Shelves for the High and Low frequencies and Bell (Peak) for the Mids. To round out the picture, we have a High Pass filter on the bottom, to cut the extreme low frequencies.

One difference we have in the 1973-Pre is that the Midrange Bell and the Low Shelf, although they have marked the switchable frequencies of the original, are sweepable. This means that we can select ANY frequency between the lowest and the highest. Lowest and highest frequencies conform to the original, and mark our boundaries.

The same applies to the High Pass Filter - this one also has sweepable frequencies between the lowest and the highest.

Another difference we have in the plug-in when compared to the original is in the boost/cut amount, that goes up to +/- 18dB instead of the +/- 16dB of the original Neve 1073.

So, to sum it up, we "almost" have a semi-parametric EQ. And we say "almost" because the High Shelf has a fixed frequency, like the original. So, we have two semi-parametric EQ bands and a fixed High Shelf band. And we have a boost/cut amount that adds 2dB in either direction to the original range of the EQ bands.

1973-Pre Single Channel EQ

But let's go back to the controls. On the top, we have the High Shelf band. As we just said, this one has a fixed frequency, therefore we just have a control for the boost/cut, between -18dB and +18dB. The Default position is 0 (middle).

Below this single control knob, we have the two controls for the Midrange, a Bell (Peak) EQ band. The original 1073 had an aluminum outer ring to select the frequency and an inner plastic knob to control the amount of boost or cut. Here, we have two separate controls and, as we said, we are not limited to the six pre-determined frequencies of the original.

In fact, the frequency selection control knob where we define the center frequency for the Bell EQ band, which is positioned a little higher than the boost/cut one on the right, is sweepable, and allows us to choose any frequency within its range. It starts as low as 360Hz (the lowest fixed frequency selectable in the original) and goes all the way up to 7.2kHz, which was the highest selectable frequency in the original. By default, the knob is positioned in the lowest point (0.36 or 360Hz).

The boost/cut control is on a separate knob on the right, positioned a little lower than the frequency knob, and allows a boost/cut of +/- 18dB. The Default position is 0 (middle).

The third EQ band is the Low Shelf. Like the Midrange, this band is also sweepable. This time we start really low, in the 35Hz range, and we can choose any frequency up to 220Hz. Both frequencies were the respective lowest and highest selectable frequency of the original Low Shelf band. As with the Midrange band, the default position is in the lowest point (35Hz).

On the right, a little lower, as with the Midrange controls, we have the boost/cut knob, again with a boost/cut of +/- 18dB. Again, the default position is in the middle (O).

Finally, we have the High Pass filter control. Since the filter slope is pre-determined and fixed (we have a slope of -18dB per octave, like the original) we just need a control for the filter cutoff frequency. Again, like it happened with the Midrange and the Low bands, we have a sweepable control that starts at 50Hz and goes up to 300Hz, which is the same range as the original. However, unlike it happened with the EQ bands, this time we have an extra position, on the lower left, which is the switch that turns Off the filter. Off is the default position.

On the lower part of the EQ section, below the filter controls, we have two button switches. These correspond to the same two button switches we had in the original. The switch on the left activates or deactivates the EQ section (turns it On or Off). The switch on the right is to invert the phase of the audio. The default position for the EQ switch is On, and for the Phase inverter is Off.

> ♪: Make some changes on the EQ bands. Now press the EQ button to turn Off the EQ section, and turn it On again. You should perceive a noticeable difference in the audio. The frequency range of the filter is quite broad, and covers completely the frequency range of the Low Shelf Band, so, pay attention to that.

5.1.2. Single Channel Preamp Section and Output

The preamp section in the Single Channel configuration is very simple. It is located on the right side of the control panel. On top, we have a single VU meter. Remember that we can calibrate the response of the VU meter by clicking in the respective button of the lower toolbar section of the User Interface (which displays the default value of -18dBFs). We can change that value to -14dBFs or -8dBFs. If you don't have a good reason to change the calibration, leave it that way.

1973-Pre Single Channel Preamp

Right below the VU meter, we have the Input Level knob. This knob controls the saturation level (drive) added to the sound. Its values go from -80dB to -20dB with the default position in -80dB. When we increase this value, we increase the saturation level.

However, we will not have an increase in the overall perceived volume. This is due to the fact that the 1973-Pre plug-in has an Automatic Gain Compensation, which balances the gain induced in this stage so that we don't have to bother with differences in volume, and can concentrate on the real deal, which is the audio saturation.

Below the Input Level knob, we have the Output Trim knob. This knob controls the overall output volume of the 1973-Pre, and goes from -24dB to +24dB. Default value is 0dB (no change in volume).

Below this knob, we have the Transformer button. This button allows you to activate a second type of transformer, that introduces a slight variation in the kind of saturation produced by the Neve 1073. This second type is a custom recreation of the transformer of another famous piece of vintage equipment. By default, we have Type 1 selected, which is the original 1073 Transformer type.

5.2. Double Channel

The Double Channel configuration is the one we use to process stereo tracks. We don't need to select it, since the plug-in automatically recognizes if the audio track is mono or stereo, and opens the proper configuration accordingly.

However, the Double Channel configuration doesn't operate exclusively in stereo mode. In fact, we have three modes to work with in this configuration. The default one is, of course, Stereo mode. We can confirm this because the sections are tied between left and right channels (the Stereo Link button is On). So, when we move a control in the left channel, the corresponding control in the right channel follows, and vice-versa.

But we can also work in Mid/Side (M/S) mode and in Dual Mono mode.

An audio tool that supports M/S processing (such as the 1973-Pre) creates two separate processes, one for the Mid channel (the center of the stereo image) and one for the Side channel (the edges of the stereo image), as we explained before [p.26].

To work in this mode, we have to adjust the corresponding switch (which is only present in Double Channel configuration) to the M/S position (by default it is positioned in the L/R position, for Left/Right, or Stereo mode).

Of course, in this mode, Mid and Side channels work independently, so, any changes we make on one channel are NOT followed by the other channel, as it happened in L/R mode. The Stereo Link button is turned Off. This is not a Dual Mono mode though. As we said, changes in the channel on the left (the Mid Channel) affect the way we perceive the sound in the center of the stereo spectrum, while changes in the channel on the right (the Side channel) affect the way we perceive sound in the edges of the stereo spectrum.

We also have a third mode, which is Dual Mono. In this mode, each of the two channels works independently, as if they were mono channels. Therefore, any adjustments we make on one channel will not be followed by the other, and will affect ONLY that channel. This may seem similar to the behavior of the M/S mode, but it is different because, in this mode, we are processing each channel in Mono mode, while in M/S mode the processing done on each channel has influence on the stereo image.

This mode is activated when the Stereo Link switch is Off and the Stereo Mode button is in the L/R position.

By default, the plug-in works in Stereo mode (the Stereo Link button is On and the Stereo Mode button is in L/R position).

Now, let's examine each control in Double Channel configuration:

5.2.1. Double Channel EQ Section

The EQ section is basically the same as it is in Single Channel configuration, except that we have two columns side by side (one for the Left, or Mid, or channel 1 in Dual Mono, and the other for the Right, or Side, or channel 2 in Dual Mono). So, everything is doubled. Note that the Neve 1073 channels were mono, so, when we are working in Double Channel configuration it's like we were using two 1073 channels (except that we have the special Stereo and Mid/Side modes that we didn't have in the original).

1973-Pre Double Channel EQ

Besides that, all the controls we have here (High Shelf, Midrange Bell, Low Shelf, High Pass Filter and the EQ and Phase switches) were already explained previously in the Single Channel configuration, so please read that description [p.28].

5.2.2. Double Channel Preamp Section and Output

The preamp section in the Double Channel configuration, besides having doubled the controls we saw in the Single Channel configuration, also has some extra buttons to select the special working modes we have available with this configuration.

It is located on the right side of the control panel, as was the case in the Single Channel. On top, we have two VU meters, one for each channel. Their behavior and calibration is exactly the same as we described [p.31] for the one present in the Single Channel.

1973-Pre Double Channel Preamp

Right below the VU meters, we have the Input Gain knobs. Again, we now have two, one for each channel. These knobs control the saturation level (drive) added to the sound. Their values go from -80dB to -20dB with the default position in -80dB. When we increase this value, we increase the saturation level.

Below the Input Gain knobs, we have the Output Trim knobs. Like it happens in the Single Channel configuration, these control the overall volume for each channel, and go from -24dB to +24dB. Default value is 0dB (no change in volume).

Again, when we work in Stereo (the Stereo Link button is On) any change we make in one of these knobs will be automatically reflected in the other.

Below the Output Trim knobs, we have a pair of switches for the Transformer type. These do exactly the same thing the corresponding switch does in the Single Channel. Theoretically, we can have a different type of transformer for each channel. Although this is possible, it isn't at all natural, and perhaps even undesirable, so, it's probably better to have the same Transformer type for both channels.

Below these switches, we have the Stereo Link switch. This is a very important one. It changes the behavior of the Double Channel configuration. By default, it is On, which means we are working in Stereo mode.

1973-Pre Double Channel Output. Note that, although the Transformer Type switches are placed below the Output Trim knobs, they affect the signal right after it enters the plug-in, therefore the Transformer Type selection will have a subtle but effective influence on the type of induced saturation and harmonic distortion.

Below the Stereo Link, we have the Stereo Mode switch. This is another very important switch. It's where we change the behavior between True Stereo (L/R, which means Left/ Right) or Mid/Side mode (M/S switch position). The Mid/Side mode has been described in detail in the "Mid/Side mode" entry [p.26] in the "1973-Pre OVERVIEW" chapter, so please refer to that part of the manual if you want to clarify something. Bear in mind, though, that it's with this switch that we change the mode configuration. Possible configurations are as follows:

- Stereo Link On and Stereo Mode at L/R - True Stereo mode
- Stereo Link Off and Stereo Mode at M/S - Mid/Side mode (Stereo Link is automatically turned Off)
- Stereo Link Off and Stereo Mode at L/R - Dual Mono mode

5.2.3. Some final words

Some final words to mention something very important. Usually, to change values in the plug-in controls, we click on the corresponding control and drag the mouse up or down. If the controls are switches, we simply click them to toggle On or Off. If we want finer editing values, we can use Ctrl+Drag (Cmd+Drag on macOS). Alternatively, we can mouse Right-Click and Drag. Using this key combination, the values change in a slower way, which allow us to get more precise values easily.

Double-clicking a control changes it automatically to the default value. This also works with Alt+Click (Opt+Click on macOS).

And that's it. We just finished describing all the controls you have at your disposal to process sound in your DAW using the 1973-Pre. We hope you'll enjoy your new plug-in and the results you get when using it, as much as we enjoyed making it.

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