Chorus DIMENSION-D

ARTURIA

_The sound explorers

Special Thanks

DIRECTION

Frederic BRUN	Kevin MOLCARD

DEVELOPMENT

Samuel LIMIER	Alessandro DE CECCO	Timothé BEHETY	Pierre-Lin LANEYRIE
Kévin ARCAS	Raynald DANTIGNY	Yann BURRER	Mathieu NOCENTI
Rasmus KÜRSTEIN	Alexandre ADAM	Loris DE MARCO	Marie PAULI
Corentin COMTE	Baptiste AUBRY	Geoffrey GORMOND	

DESIGN

Martin DUTASTA	Clément BASTIAT	Shaun ELWOOD	Morgan PERRIER

SOUND DESIGN

Jean-Baptiste ARTHUS	Clément BASTIAT	Léo BATTLE
Jean-Michel BLANCHET	William ROBERTSON	

TESTING

Florian MARIN	Thomas BARBIER	Christophe TESSA

MANUAL

Fernando MANUEL RODRIGUES (author)	Camille DALEMANS	Minoru KOIKE	Jose RENDON
	Holger STEINBRINK	Charlotte METAIS	

BETA TESTING

Gustavo BRAVETTI	Marco CORREIA (Koshdukai)	Guillaume HERNANDEZ	Peter TOMLINSON
David BIRDWELL	Ben EGGEHORN	Jay JANSSEN	Chuck ZWICKY
Jeffrey CECIL	Matthew HERBERT	Luca LEFEVRE	
Dwight DAVIS		Terry MARSDEN	

Product version: 1.0

Revision date: 19 November 2020

Thank you for purchasing Arturia's Chorus DIMENSION-D!

This manual covers the features and operation of the Chorus DIMENSION-D.

Be sure to register your software as soon as possible! When you purchased Chorus DIMENSION-D 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 or features without notice or obligation.

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

Introduction

Congratulations on your purchase of Arturia's Chorus DIMENSION-D!

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. This line was recently expanded with the launch of the AudioFuse Studio and the AudioFuse 8Pre. Arturia has also been busy making effect plug-ins, launching in 2018 the first Arturia effects bundle, which included the Pre 1973, the Pre TridA, and the Pre V76.

Other bundles followed, dedicated to compressors, filters, delays, and reverbs. With the launch of these new effects, this time dedicated to modulation, Arturia consolidates its position as a leader in audio effects plug-ins.

ARTURIA has a passion for excellence and accuracy. This has led us to conduct an extensive analysis of every aspect of one of the most sought-after chorus units of the past. But, as is now a habit and a fundamental characteristic of all of our plug-ins, we didn't just model the sound and behavior of this unique unit, we also added several features that were unimaginable in the days the original was being manufactured.

Chorus DIMENSION-D runs as a plug-in in all major formats inside your DAW.

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 mentioned are used solely to identify the products of those manufacturers whose features and sound were studied during the development of this plug-in. 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 Chorus DIMENSION-D by any equipment inventor or manufacturer.

The Arturia team

Table Of Contents

1. WELCOME

1.1. What is a modulation effect?

Modulation effects work by modifying the sound in a certain way, usually by means of modulation controlled by a Low-Frequency Oscillator (LFO). For example, they can add one or more slightly delayed versions of the sound to itself, while modulating the pitch of those versions over time.

You can obtain three main effect types with modulation: chorus, flanging, and phase shifting. Of the three, chorus is perhaps the most sought-after, since it allows to create "richer" versions of the sound. The chorus effect works by mixing the audio signal with one or more delayed, pitch-modulated copies of itself. The pitch of the added voices is modulated by an LFO, which makes the overall effect similar to that of the flanger, except with longer delays and less modulation.

This effect may be used to recreate the one that naturally occurs when individual sounds, with approximately the same time and very similar pitches, converge and are perceived as one, like what happens when you listen to a voice choir or a string ensemble (also sometimes designated as a "string choir") - hence the "chorus" name, and also the presence of "ensemble" presets in many chorus effects, and even some special tailored chorus effects called "ensemble" or even "symphony". You can say that the "chorus" effect sounds like multiplying while widening and thickening the sound. It also allows to create a stereo image out of a mono signal.

Flanger is an effect similar to Chorus, produced by mixing two identical signals, with one signal delayed by a small and gradually changing amount of time and modulated through an LFO, which produces a characteristic undulating (sweeping) effect, but with a sound resembling the result of a comb filtering. Speeding up the LFO accentuates the modulation effect. As we said, the effect is similar to Chorus, but here you use shorter delays for the delayed signal.

Also, part of the signal is usually fed-back into the input, producing a resonance effect. The phase of the feedback signal can also be inverted, to achieve further variations of the flanger effect.

The Phaser (phase-shifter) is another modulation effect, with results somehow similar to Flanger. It is produced by splitting the audio signal into two paths, one being treated by all-pass filters, which preserve the amplitude of the original signal but alter its phase. Here, you use no delayed signal. The two paths are mixed back together after the all-pass filtering, and the frequencies that are out of phase cancel each other out, producing the phaser's characteristic "whoosh" sweeping effect.

So, the phaser works by canceling bands of frequencies to obtain the desired effect. No delay is used in this effect, which differentiates it from the other two.

Modulation effects can create a huge range of sonorities, and the results may be perceived as a fuller, richer sound. No wonder they have been used extensively since they appeared. Also, they have been an essential addition to almost any synthesizer since the eighties.

1.2. What about Chorus DIMENSION-D?

The Arturia Chorus DIMENSION-D is part of a new set of effects, proposing three new iconic vintage modulation effects units.

This unit was a stereo chorus rack which became a studio legend after its introduction in 1979. Loved for its delicate spatial enhancement and subtle modulation, this chorus unit became the go-to sweetener for vocals, piano and guitar throughout the eighties. Among the people who used it extensively are artists such as Brian Eno, Talking Heads, Peter Gabriel, Steve Ray Vaughan and Kate Bush.

It is remarkable for its simplicity. In fact you only have four buttons to operate it. The unit is preset-based, and each button selects one chorus preset. Only the fourth button, when pressed, increases the effect obtained with each one of the first three buttons.

The distinctive sound of this device is mostly due to its BBD (bucket-brigade delay) chip architecture, the original output signal dry/wet cross mix and the addition of built-in compressor/expander and filters. This results in a unique warm analog sound and character, with a slight low-pass feel.

The bucket-brigade architecture owes its name to the analogy to a line of people passing buckets of water from hand to hand. That's exactly what happens in a chip architecture like this, where the signal passes from capacitor to capacitor with delays added, one step per clock cycle.

But that's not all. Chorus DIMENSION-D comes equipped with some extra tools to allow you to go beyond what you could achieve with the original unit. Here, you get extra waveforms for the modulation LFO, a stereo width control, and a dynamic color control.

1.3. Where can you use a chorus unit like this?

A chorus has a multitude of uses. As was mentioned already, it works great to add dimension to a mono sound, transforming it to stereo (when used in a mono-to-stereo configuration). Also, it may contribute an extra degree of density to any sound, transforming a solo into a choir or ensemble (exactly what's implied in the effect's name).

Those who know the Juno-60 (and also the JX synths, but especially the first) may remember the ubiquitous chorus effect that was featured in the control panel. The chorus was so important to the sound of that synth that some even say the Juno-60 was a chorus unit with a synth attached. In fact never before had a single oscillator synthesizer sounded so rich and full.

That said, it's the sounds that naturally demand ensemble and dimension effects that can benefit most from a chorus effect. Sounds like strings, brass, and winds, can come up bigger with chorus. A solo instrument like guitar or voice, for example, can also benefit from the addition of a chorus effect.

Vocals, naturally, can take great advantage of a chorus unit, especially background vocals. But lead vocals too can benefit of the extra dimension added by a good chorus unit.

We've already mentioned the ensemble sounds, but keyboards in general can grow a lot with the addition of chorus. Organs (of course - of any kind), but also pianos, especially the electric piano (eventually complemented with other modulation effects... but we will get there).

Longer delay values in the chorus effect can work well to create the illusion of a double performance, and this takes us back to the solos (as in guitar solos), which may sometimes be "doubled" with a chorus unit.

But you can use chorus pretty much anywhere, and in many ways. Experiment extensively. Use your imagination. Don't be afraid of making mistakes. We've all made mistakes, and we've all learned a lot by making them. The most important thing is to have a great time using this unit and creating great sounds with it.

2. ACTIVATION AND FIRST START

The Arturia Chorus DIMENSION-D plug-in works on computers equipped with:

Windows 7 or later and macOS 10.10 or later.

You can use the Chorus DIMENSION-D plug-in as an Audio Unit, AAX, VST2 or VST3 plug-in (64-bit only).

2.1. Activate the Arturia Chorus DIMENSION-D 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 which 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. Working with plug-ins

Chorus DIMENSION-D can be used in all major digital audio workstations (DAWs), including Live, Logic, Cubase, Pro Tools and others, as it comes in all the main plug-in formats. Unlike what happens with hardware, you can load as many instances of the effect as you find useful. Chorus DIMENSION-D has two other big advantages over hardware:

- 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.

3.1. Arturia's Chorus DIMENSION-D plug-in

Our goal was to give users the experience of a great tool from the past. But although we have worked to be faithful to the unit sound, appearance and workflow, it wouldn't be an Arturia plug-in without the addition of some extra features to enrich your user experience.

We kept the user interface's simplicity. As is usual with the effect plug-ins produced by Arturia, the Graphical User Interface (GUI) has two panels, the Main panel and the Advanced panel.

The Main panel has the original controls, which are just a few buttons. This unit is preset-based, with a row of five buttons that allow you to select the kind of chorus effect you'll get. We kept this row of buttons, with the four chorus mode selection buttons and a fifth button labeled "Mode O". The panel also includes a Mono/Stereo button, and the "Power" button (which activates bypass mode).

But we also included a few other tools, like alternative LFO shapes, a "dynamic color" selector, and stereo width control, for example. These, as usual, are featured on the Advanced control panel.

We will take a detailed look at all of these things in the Control Panel chapter [p.11]. Now, it's time to check out how it works and how it sounds. Let's go!

3.2. Understanding the Chorus DIMENSION-D Signal Flow

The Chorus DIMENSION-D plug-in is an effect plug-in with a very simple control panel interface. Nevertheless, the control panel's simplicity hides a very effective chorus engine that may offer a lot to the user, like the original units did over the years.

When the plug-in is bypassed, the signal is routed directly to the output, untouched. This is the signal heard when you press the Power button or the Bypass button in the Lower Toolbar.

As the signal enters the plug-in, it is immediately subjected to some processing. Right from the beginning, left and right channels may be summed and treated as a single mono channel (when you select Mono in the Mode button). Otherwise, both channels follow a regular stereo signal path.

After this step, the signal is split between a Dry and a Wet path. The Wet path goes into the processing circuit. The Dry patch (the part of the signal that's not going to be processed by the chorus engine) is routed to a special Filters section (a kind of light low-shelf boost) and will later be summed back to the modulated signal.

The part of the signal that is routed to the main processing circuit is then routed through the emulated Compressor + Filters circuits. These circuits pre-process the audio to get a better result from the bucket-brigade delay circuit, and are fundamental to get the vibe of the original unit.

The Compressor + Filters circuit has a soft filter which resembles a shelf-like two band EQ set to add emphasis to the lows while attenuating the highs. This is followed by a compressor which narrows the dynamics of the audio.

The reason for this circuit is because the BBD chips were very noisy, and passing the audio through this circuit before the BBD stage allows to take the best advantage of the delay while keeping the noise within a controllable level.

The audio then proceeds to the Dimension section, where it is be processed by the BBD circuit. When any of the three buttons is selected (with or without button 4), the signal will be processed accordingly.

If any of the four Dimension buttons (1, 2 and 3, with or without 4) are pressed, then the signal will be modulated. After the delay (modulation processing), the signal is further processed through an Expander + Filters circuit block.

This circuit block may be seen as symmetrical to the previous Compressor + Filters circuit. Here, the audio is passed through an Expander circuit which is set to compensate for the dynamic loss of the previous Compressor stage, this way restoring the original audio dynamics. After this stage, the audio will then pass through a soft filter which also resembles a shelf-like two band EQ, this time set to add emphasis to the highs while attenuating the lows.

The two channels' signals will then be mixed together with the filtered part of the signal coming from the split at the beginning. You also have a cross-mix of the processed signal, which contributes to adding an extra degree of density, thus enriching it even more. This is a very special feature that greatly contributes to the charm and fame of this unit. The delayed signal is cross-mixed to the other channel with opposite polarity. Normally this would result in a loss of lower frequencies, but the filtering circuit applies a kind of low-shelf EQ to the entire signal. This filtering circuit also slightly boosts the bass of the direct signal, this way avoiding the loss in the bass region.

After this stage, the composite signal advances to the last step, where the two channels (stereo signal) will be processed by the Stereo Width, which may expand or shrink the stereo image. It will then be routed to the plug-in Output.

This is the complete signal flow of the Chorus DIMENSION-D. Study the circuit, spend some time with the controls, and we're sure you'll gain a deep understanding of how this chorus processor works. The following section will definitely give you some help.
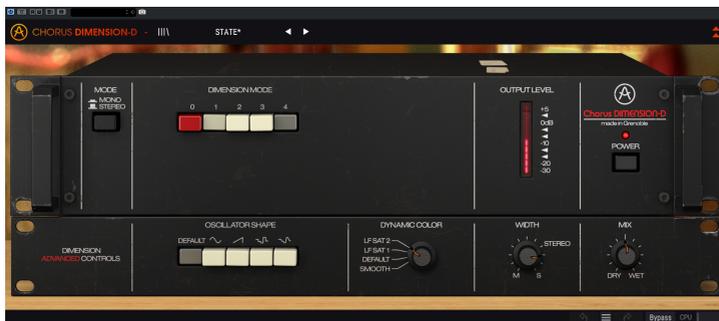
There is also an extra routing feature, connected to the "Mode O" button. This in an extra feature added by Arturia. For more details, please refer to the Dimension Mode section [p.13].

3.3. Getting hands-on with Chorus DIMENSION-D

3.3.1. Chorus Basics

To get an idea of the Chorus DIMENSION-D's capabilities, we suggest you try the following:

- Load a stereo clip into an audio track in your DAW (vocal tracks, a solo guitar track or some keyboard licks are ideal for this);
- Load an instance of Chorus DIMENSION-D as an insert in that track. Open the Chorus DIMENSION-D window;
- Ensure the Default preset is loaded. This means that all settings are at their initial values;
- Begin playback. The clip will already show some processing. This is because button 1 is pressed in the DIMENSION MODE section;
- Press button 2 or 3 while the music is playing. You'll notice that the chorus sound changes. These are the three single chorus modes. DIMENSION-D is preset-based, which means you don't have chorus parameters to adjust;
- Now press button 4. Notice that the button that was pressed before (no matter whether it was 1, 2 or 3) remains pressed. Button 4 increases the chorus presence by boosting the wet (delayed) signal that is going to the final output of the unit. It works in conjunction with any of the other three buttons;
- You may also try what we called "Mode 0". On the original unit, this would simply bypass the unit circuit, but we chose to add another function to it - it will send the audio through the Compressor/Expander circuit, but not the BBD (Bucket Brigade Delay) circuit. This means that although no delay is added to the sound, it will get some coloration due to the shelving filters and compressor/expander stages it will pass through. For more information about this, please read the Dimension Mode section [p.13] in the Control Panel chapter of this manual;
- If you are dealing with a stereo audio file, you will have another control - a Mono/Stereo switch. This will monoize the chorus output (but not the dry sound). Which leads to a somehow different sound. Press it to check the difference.
- And that's pretty much it as far as standard controls are concerned. This is a very simple unit (just like the original). But there's more you can do. Please read below;

3.3.2. Advanced methods of using the chorus

Now that you have a feeling for the Chorus DIMENSION-D basics, let's go a little deeper:

- Click the double downward facing arrows in the top right-hand corner to open the "Advanced" panel;
- This panel has some extra options - Oscillator Shape, Dynamic Color, Width and Mix;
- For now let's focus on Oscillator Shape. This is a row of buttons in the left part of this panel. Each button allows to select a different waveform for the Low-Frequency Oscillator. The Default button selects the original (default) triangle waveform. But, as is the case with synthesizers, for example, you may use other waveforms, leading to different results;
- Another control that you absolutely need to try is Dynamic Color. This changes the behavior of the Compressor/Expander sections of the unit, this way also changing the final sound. Although this has a very subtle effect in the audio, you may like what it does. Please try it, and tell us what you think;
- Finally, there is a switch that changes the behavior of the unit. Normally, the dry audio will be mixed to the wet (chorused) output. However, in a modern DAW, where you have lots of auxiliary channels, you may want to get just the wet signal, if you are going to use the unit in an FX auxiliary channel that's to be mixed with the unprocessed channels. This is exactly what this control allows. With it, you can control the mix between Dry and Wet signal, ranging from just Dry to fully Wet (desirable if you are using DIMENSION-D in an Auxiliary channel);
- Just one last suggestion: If you find that the chorus effect you get from a single instance is not enough, you may add a second instance (or even a third, if you really want to get adventurous). Chorus DIMENSION-D is very light on the CPU and adds very little latency, so piling several instances is safe.

These are just some very simple examples of what you can do with Chorus DIMENSION-D. Despite looking deceptively simple, it offers more than you could imagine. As always, use your imagination, and try to find other creative and interesting ways of using it.

4. CHORUS DIMENSION-D CONTROL PANEL

The Chorus DIMENSION-D plug-in can be used in Mono, Stereo or Mono-to-Stereo configurations, independently of the source material.

The Mono configuration is automatically loaded when you use the plug-in with mono tracks. When inserted in stereo tracks, the Stereo configuration is automatically loaded as well. When the plug-in is instantiated as Mono-to-Stereo, as in Pro Tools for example, there is also a different configuration.

Nevertheless, when instantiated in stereo tracks, you can change the desired configuration by pressing the Mode button, located at the top left of the Main Control Panel. By default, this button is on Stereo Mode, but you can "monoize" the source signal by selecting the "Mono" mode.

> ♪: Not all DAWs are able to work with mono tracks, in which case you will not be able to use the mono configuration. The same applies to the mono-to-stereo configuration.

4.1. Channel Configuration (Mono/Stereo/Mono-to-Stereo)

The difference between the different configurations consists in the following:

When instantiated in stereo channels, the plug-in loads in full mode, featuring the Mode (Mono/Stereo) button in the Main panel and the Width control in the Advanced panel.

When instantiated in mono channels, the plug-in doesn't have these two controls, since they only act on stereo signals.

When instantiated as mono-to-stereo, you have the Width control, but the Mode button (Mono/Stereo) is not present, since the source signal is mono. Bear in mind that, when used with mono sources in the mono-to-stereo configuration, the source signal remains mono, but the processed signal will have some stereo definition and depth, hence the presence of the Width control.

4.2. Main Control Panel

The Chorus DIMENSION-D Graphical User Interface is very simple, as it follows the original unit's control panel, which was also very simple. The Main control panel is where the main chorus controls are located, and is the one that opens by default when you launch the plug-in.

But Arturia included some extra modulation features. These are located on a second panel, the Advanced control panel, which opens when you click the double arrow button (the Advanced Mode button) in the Upper Toolbar.

As is the case with the previous effects bundles, as well as with all current Arturia plug-ins, this GUI also has an Upper Toolbar and a Lower Toolbar. The Lower Toolbar is very important for the use of the Arturia plug-ins, as it features the Undo and Redo functions, lists the editing history, allows you to put the plug-in in Bypass (which doubles the Power button on the Main control panel), and measures CPU consumption.

The Upper Toolbar is where you access the main menus, perform important tasks such as loading and saving presets and banks of presets, and where you can select a preset and see the name of the preset currently in use. The toolbars and their features are covered in detail in the User Interface chapter [p.18].

We will now have a look at all the controls available, explaining what they do, what their ranges are and how to interpret the numbers.

Notice that each time you click a control (knob or button), or simply hover the mouse over it, the Lower Toolbar displays the parameter name at the lower left. Also, a small pop-up box appears to the right of the control displaying the current parameter value. This changes every time you move that control, updating the parameter value in real time.

Now, let's take a look at each control on the Main Control Panel.

4.2.1. Mode

This switch has two positions: Stereo and Mono. When in Stereo, you have full stereo processing. When in Mono, the source signal is "monoized" (Left and Right inputs are summed before processing).

> ♪: The Mode switch is absent when the plug-in is instantiated in mono channels, either as mono or mono-to-stereo, since there is no stereo signal to start with.
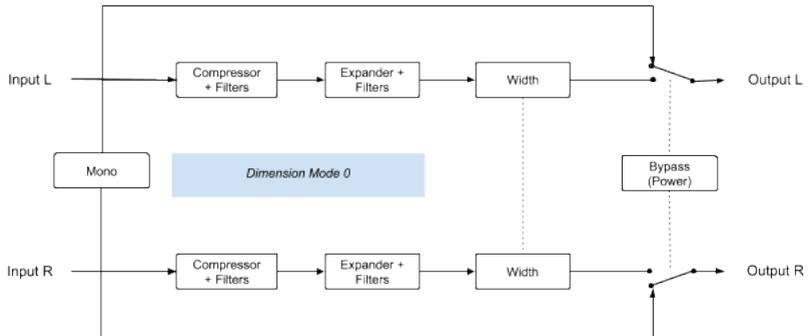
By default, the switch is in the Stereo position.

4.2.2. Dimension Mode

This is the main control for the chorus effect. As in the original unit, it consists in a row of five buttons.

The first button is red, and labeled"O". When this button is selected, you will have no chorus effect added to the signal. However, although in the original unit this was essentially a bypass button, we added an extra feature to it, and transformed it into a "Mode O" button, with the audio routed through an emulation of the electronics of the original and thus receiving some color and filtering from the compressor, expander, and filter circuits. The "Mode O" signal-flow is as follows:

When the "O" button is pressed, the signal follows a special signal-flow path, that processes the sound through some of the circuits of DIMENSION-D, but **not** the main BBD circuit. This feature didn't exist in the original unit.

So, when Mode O is activated, the audio signal follows this path. The first stage is a Compressor + Filters. The filters act like a soft shelf-like double band EQ, which adds emphasis to the lows and attenuates the highs. This is followed by a compressor which considerably narrows the dynamics of the audio.

This is then followed by another stage (Expander + Filters) where a symmetrical kind of filter (soft shelf-like double band EQ) will add emphasis to the highs while attenuating the lows. This is followed by an expander which compensates for the loss of dynamics caused by the previous stage.

This whole process may not be very audible, but it will add some color to the audio signal. The audio will then follow to the Width control stage.

Besides this "O" button, you have four other buttons. These work exactly like in the original.

The first three select a different chorus intensity, with different delay and LFO settings. Basically, Mode 1 has the softest chorus effect, while Mode 2 has more chorus intensity (the delay times are about half those of Mode 1). Mode 3 has a delay time more or less between the first two modes, but a modulation intensity by the LFO that is twice that of modes 1 and 2, which gives it a more pronounced effect. Therefore, it's the one to press when you want a really deep chorus effect.

Mode 4 is a special button. It doesn't work alone but in combination with each of the first three. It injects more wet signal in the output. Therefore, it is basically a gain button applied to the wet signal. That's why it can't be used alone (despite many different descriptions that can be found online for the Mode 4 button, this is what we actually measured on original units).
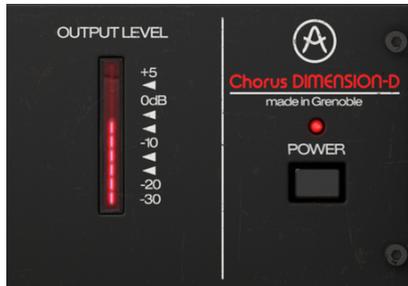
So, to sum it up: you have three chorus intensity buttons, where 3 > 2 > 1, and when you activate the fourth button, you add more wet signal to the mixed output, which means a more chorused signal (more Wet and less Dry signal). Plain and simple.

By default, button one will be pressed alone, which will give the softest chorus effect.

> ♪: Although in the original units it is possible to press more than one button, or even all the buttons, this doesn't give the user any extra advantage. In fact, when you press more than one of the first three buttons, the button with the highest order is the one that gains control, which means that, if you press 1 + 2 + 3, the effect obtained is the same you get when pressing just 3. The only button that adds something to the effect is button 4, both in the original units and in the emulation.

4.2.3. Output Level

This is a LED VUmeter display, and it's there to help monitor the output signal level, preventing distortion. The VUmeter is calibrated so O dB VU is equivalent to -12 dBFS.

4.2.4. Power

The Power button turns off the plug-in. In practice, it works as a bypass button, and has the exact same effect as clicking Bypass in the Lower Toolbar.

4.3. Advanced Mode Control Panel

The Advanced Mode Control Panel is accessed by clicking the Advanced Mode (double arrow) button in the Upper Toolbar. These are very important additions that bring a lot of extra power and flexibility to the processor.

In the case of Chorus DIMENSION-D, this panel features a row of buttons that select alternative LFO waveforms, a Dynamic Color control, a Width control, and a Mix button.

4.3.1. Oscillator Shape

This section presents a row of buttons that allows to select alternative waveforms for the modulation LFO. The original unit's LFO only allows a triangle waveform.

Here, you have the possibility to select that very same triangle waveform (the Default button), but also a Sine, a Ramp (ascending saw wave), and two kinds of random waveforms. One is a sample & glide, while the other is the more traditional sample & hold many of you are used to in synthesizers.

> ♪: Random waveforms in a chorus unit may seem counterintuitive at first sight, but they can produce interesting results, although somehow "out of the box". Anyway, you are moving here into experimental territory.

4.3.2. Dynamic Color

This control changes the original behavior of the compressor/expander stages of the unit, basically changing their time constants. You have four positions. The highest position has lower attack and release values, whereas the lowest position has smoother attack and release values, when compared to the original position (which is Default: position 3).

Here is the list of the four possible settings with the differences between them:

- Positions labeled LF Sat 1 & 2 have shorter time constants, resulting in slightly more saturation, especially noticeable at lower frequency.;

- Position labeled DEFAULT has the hardware default settings (it is also the plug-in DEFAULT value);

- Position labeled SMOOTH has smoother attack and release values.

This control may sometimes not have a very audible effect on the output, depending on the input material. Although this is a very subtle parameter, it is at the core of the original vintage and "warm" sound.

4.3.3. Width (Stereo Width)

Width controls the wideness of the stereo field of the processed signal. Fully to the right, the processed signal stereo field is wider than the original, while fully to the left the stereo image becomes "monoized".

There is a position labeled "Stereo" which corresponds to the original unit width balance. It is important to keep in mind that, because of the cross mixing included in the original design, the resulting stereo image is different from the input signal stereo image.

By default, this control is positioned on Stereo, which corresponds to the original hardware unit.

> ♪: The Width control only appears in stereo channels, or when the plug-in is instantiated as Mono-to-Stereo. When the plug-in is instantiated in mono channels, this control will not be present.

4.3.4. Mix

Mix is another control added by Arturia to give extra flexibility to the user.

The original chorus unit always outputs a mix of the dry signal and the wet signal. Some dry signal is mixed in with the wet signal, as well as a LR cross-mixing of the wet signal (for a better explanation of the audio circuit, please go to the signal flow diagram and the explanation that follows, in the Chorus DIMENSION-D Signal Flow section [p.7]).

There is no user option to control that on the original unit.

When the Mix control is at the default position (knob is at 0.500), it works like the original unit, with a mix of dry, wet and cross-mixed wet signal.

But with this control you can change the mix: fom Dry only to Wet only and everything in-between. When in the Wet position, the plug-in only outputs the wet (modulated) signal, together with the cross-mixing. This allows to use the Chorus DIMENSION-D as a regular effects processor in a bus, as within the usual Aux Send/Return configuration.

Value range goes from 0.00 (Dry) up to 1.00 (Wet).

5. USER INTERFACE

The Chorus DIMENSION-D User Interface has a Main Control Panel, an Advanced Mode Control Panel, and toolbars at the top and bottom of the window.

It is still a very simple User Interface. That will always be the main focus of every Arturia product: to unleash your creativity while remaining easy to use.

We have already looked at the control panels. Now it's time to look at the toolbars.

5.1. The Upper 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 and the Preset name, with arrows to navigate through the different presets stored in the library.

After this, you have the button that gives access to the Advanced Mode control panel (a double arrow).

A dot is added next to this double arrow button whenever the Advanced Mode is active (i.e., when there are parameters set to non-default values) if that panel is not visible.

This upper toolbar, which is common to all current Arturia plug-ins, gives access to many important functions.
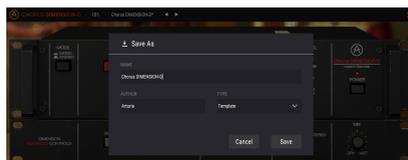
These can be found by clicking on the Arturia Chorus DIMENSION-D button at the top left-hand corner of the plug-in window. Since these options are also common to all current Arturia plug-ins, you may already be familiar with them:

5.1.1. Save Preset

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

5.1.2. Save Preset As…

When 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 Type field. This information can be read by the preset browser and is useful when searching for the preset later.

5.1.3. Import...

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 **.dimx** 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.

5.1.4. Export Menu

You can export presets in two ways: as single presets or as a bank.

- **Export 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 presets from the plug-in, which is useful for backing up or sharing presets.

5.1.5. Resize Window options

The Chorus DIMENSION-D window can be resized from 50% 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 you should use.
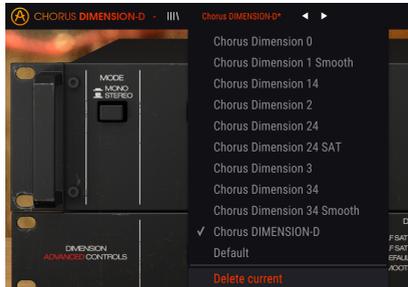
5.1.6. Help

The Help section in this menu allows direct access to the User Manual (the document you are reading), as well as to the FAQ (Frequently Asked Questions).

5.1.7. Preset Selection

The Preset browser [p.22] 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.

Select a preset by clicking the preset name field in the Upper Toolbar. That action will open a list with all the presets available. The currently selected preset is marked with a √. Then simply place the mouse over the name of the preset you want to select (the preset name will be highlighted), and click it.

Alternatively, you may use the Preset Forward and Backward arrows (the arrows at the right of the preset name field) to navigate through all the presets.

5.2. Advanced Mode (Double Arrow) Button

This button opens the Advanced Mode control panel. This is where the controls are located for the extra features Arturia added to expand the possibilities regularly found on these units.

When the Advanced Mode panel is open, the arrows point up. When the panel is closed, the arrows point down.

When certain parameters are active in the Advanced Mode panel (edited or set to values different from default) and that panel is closed, the double arrow button (pointing down) has a dot next to it to call your attention to those parameters. To check them, click the button to open the Advanced Mode control panel.

There's a detailed explanation of all the features in this Advanced Mode in the Control Panel chapter [p.11].

5.3. The Lower Toolbar

When you hover the mouse over a parameter control, you will see a readout showing that parameter's name and a brief description in the left part of the lower toolbar.

Also, you will notice a small popup window at the side of the parameter control, displaying the current value of the parameter. This will also show the value changes when you move the control (edit the parameter). This is handy because you don't need to touch the parameter control to read the current value, and also you may keep looking at the parameter while you read the value changes.

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.
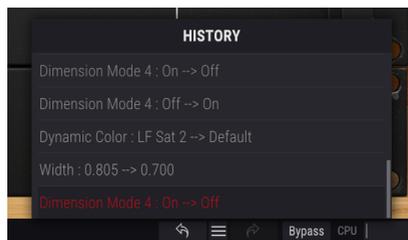
5.3.1. Panic

The Panic button, when pressed, turns off the audio to stop any stuck sound, this way preventing damage to your ears or speakers.

5.3.2. Undo

The Undo button is a curved arrow pointing to the left. This button reverts the last edit you performed. If it is clicked repeatedly it will revert the parameter changes in the order they were performed in the session, from the latest ones to the earliest ones.

5.3.3. History

This button lists all the parameter changes performed in the current session.

5.3.4. Redo

The Redo button is a curved arrow pointing to the right. This button works exactly the opposite way of the Undo button. It will reinstate the last undone edit. If it is clicked repeatedly it will reinstate the parameter changes in the order they were undone (the latest undone ones first).
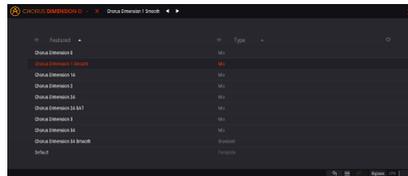
5.3.5. Bypass

This one is obvious. Activating the bypass option will completely disable the Chorus DIMENSION-D plug-in. This action may also be performed by the Power switch.

5.3.6. 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.
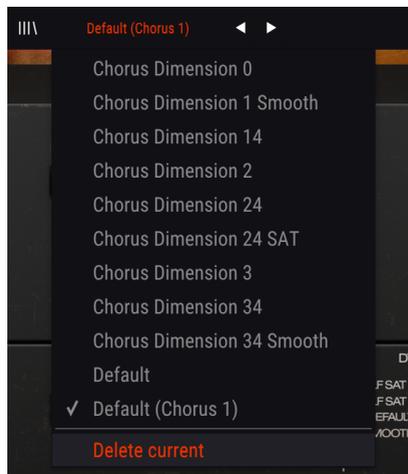
5.4. The Preset browser

The preset browser enables you to search, load and manage preset configurations in Chorus DIMENSION-D. Although this looks like 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/plug-in name 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 can list the Presets by Name or by "Featured". The Featured presets were selected as important by Arturia. The second one lists the Presets by Type or by Designer.

There is only one attribute visible, which is the one you select by clicking the column title. Type is the default attribute. When you select the Designer attribute, the list changes and that attribute replaces the Type field in the second column.

If you want to delete a preset, first select it in the browser list. Next, click in the name field at the top to open the list of presets. Then choose the option "Delete current" at the bottom of the list, and confirm the action in the pop-up window.

5.5. Fine-tuning parameters

Typically, to change values in the plug-in controls, just click on the corresponding control and drag the mouse up or down. If the controls are switches, simply click them to toggle On or Off.

If you want finer editing values, you can use Ctrl+Drag (Cmd+Drag for macOS). Alternatively, you can Right-Click and Drag. With this technique the values change more slowly, which enables you to edit them with greater precision.

5.6. Resetting your controls

Double-clicking a control automatically changes it to the default value.

And that's it. We have just finished describing all the controls you have at your disposal to process sound in your DAW using the Chorus DIMENSION-D plug-in. We hope you'll enjoy your new plug-in (and the results you get with it!) as much as we enjoyed making it.

6. SOFTWARE LICENSE AGREEMENT

In consideration of payment of the Licensee fee, which is a portion of the price you paid, Arturia, as Licensor, grants to you (hereinafter termed "Licensee") a nonexclusive right to use this copy of the Chorus DIMENSION-D Software (hereinafter the "SOFTWARE").

All intellectual property rights in the software belong to Arturia SA (hereinafter: "Arturia"). Arturia permits you only to copy, download, install and use the software in accordance with the terms and conditions of this Agreement.

The product contains product activation for protection against unlawful copying. The OEM software can be used only following registration.

Internet access is required for the activation process. The terms and conditions for use of the software by you, the end-user, appear below. By installing the software on your computer you agree to these terms and conditions. Please read the following text carefully in its entirety. If you do not approve these terms and conditions, you must not install this software. In this event give the product back to where you have purchased it (including all written material, the complete undamaged packing as well as the enclosed hardware) immediately but at the latest within 30 days in return for a refund of the purchase price.

1. Software Ownership Arturia shall retain full and complete title to the SOFTWARE recorded on the enclosed disks and all subsequent copies of the SOFTWARE, regardless of the media or form on or in which the original disks or copies may exist. The License is not a sale of the original SOFTWARE.

2. Grant of License Arturia grants you a non-exclusive license for the use of the software according to the terms and conditions of this Agreement. You may not lease, loan or sub-license the software.
The use of the software within a network is illegal where there is the possibility of a contemporaneous multiple use of the program.
You are entitled to prepare a backup copy of the software which will not be used for purposes other than storage purposes.
You shall have no further right or interest to use the software other than the limited rights as specified in this Agreement. Arturia reserves all rights not expressly granted.

3. Activation of the Software Arturia may use a compulsory activation of the software and a compulsory registration of the OEM software for license control to protect the software against unlawful copying. If you do not accept the terms and conditions of this Agreement, the software will not work.
In such a case the product including the software may only be returned within 30 days following acquisition of the product. Upon return a claim according to § 11 shall not apply.

4. Support, Upgrades and Updates after Product Registration You can only receive support, upgrades and updates following the personal product registration. Support is provided only for the current version and for the previous version during one year after publication of the new version. Arturia can modify and partly or completely adjust the nature of the support (hotline, forum on the website etc.), upgrades and updates at any time.
The product registration is possible during the activation process or at any time later through the Internet. In such a process you are asked to agree to the storage and use of your personal data (name, address, contact, email-address, and license data) for the purposes specified above. Arturia may also forward these data to engaged third parties, in particular distributors, for support purposes and for the verification of the upgrade or update right.

5. No Unbundling The software usually contains a variety of different files which in its configuration ensure the complete functionality of the software. The software may be used as one product only. It is not required that you use or install all components of the software. You must not arrange components of the software in a new way and develop a modified version of the software or a new product as a result. The configuration of the software may not be modified for the purpose of distribution, assignment or resale.

6. Assignment of Rights You may assign all your rights to use the software to another person subject to the conditions that (a) you assign to this other person (i) this Agreement and (ii) the software or hardware provided with the software, packed or preinstalled thereon, including all copies, upgrades, updates, backup copies and previous versions, which granted a right to an update or upgrade on this software, (b) you do not retain upgrades, updates, backup copies und previous versions of this software and (c) the recipient accepts the terms and conditions of this Agreement as well as other regulations pursuant to which you acquired a valid software license.
A return of the product due to a failure to accept the terms and conditions of this Agreement, e.g. the product activation, shall not be possible following the assignment of rights.

7. Upgrades and Updates You must have a valid license for the previous or more inferior version of the software in order to be allowed to use an upgrade or update for the software. Upon transferring this previous or more inferior version of the software to third parties the right to use the upgrade or update of the software shall expire.
The acquisition of an upgrade or update does not in itself confer any right to use the software.
The right of support for the previous or inferior version of the software expires upon the installation of an upgrade or update.

8. Limited Warranty Arturia warrants that the disks on which the software is furnished is free from defects in materials and workmanship under normal use for a period of thirty (30) days from the date of purchase. Your receipt shall be evidence of the date of purchase. Any implied warranties on the software are limited to thirty (30) days from the date of purchase. Some states do not allow limitations on duration of an implied warranty, so the above limitation may not apply to you. All programs and accompanying materials are provided "as is" without warranty of any kind. The complete risk as to the quality and performance of the programs is with you. Should the program prove defective, you assume the entire cost of all necessary servicing, repair or correction.

9. Remedies Arturia's entire liability and your exclusive remedy shall be at Arturia's option either (a) return of the purchase price or (b) replacement of the disk that does not meet the Limited Warranty and which is returned to Arturia with a copy of your receipt. This limited Warranty is void if failure of the software has resulted from accident, abuse, modification, or misapplication. Any replacement software will be warranted for the remainder of the original warranty period or thirty (30) days, whichever is longer.

10. No other Warranties The above warranties are in lieu of all other warranties, expressed or implied, including but not limited to, the implied warranties of merchantability and fitness for a particular purpose. No oral or written information or advice given by Arturia, its dealers, distributors, agents or employees shall create a warranty or in any way increase the scope of this limited warranty.

11. No Liability for Consequential Damages Neither Arturia nor anyone else involved in the creation, production, or delivery of this product shall be liable for any direct, indirect, consequential, or incidental damages arising out of the use of, or inability to use this product (including without limitation, damages for loss of business profits, business interruption, loss of business information and the like) even if Arturia was previously advised of the possibility of such damages. Some states do not allow limitations on the length of an implied warranty or the exclusion or limitation of incidental or 0consequential damages, so the above limitation or exclusions may not apply to you. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.