

USER MANUAL

_ROTARY CLS-222

ARTURIA

_The sound explorers

Special Thanks

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Special Messages

This manual covers how to use Rotary CLS-222, provides a comprehensive look at its features, and details how to download and activate it. First, some important messages:

Specifications Subject to Change:

The information contained in this manual is 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 volume or at a level that is uncomfortable.

If you encounter any hearing loss or ringing in your ears, please consult an audiologist.

NOTICE:

Service charges incurred due to lack of knowledge relating to how a function or a feature works (when the software is operating as designed) are not covered by the manufacturer's warranty, and are therefore the owner's responsibility. Please study this manual carefully and consult your dealer before requesting additional support.

EPILEPSY WARNING – Please Read Before Using Rotary CLS-222

Some people are susceptible to epileptic seizures or loss of consciousness when exposed to certain flashing lights or light patterns in everyday life. This may happen even if the person has no medical history of epilepsy or has never had any epileptic seizures. If you or anyone in your family has ever had symptoms related to epilepsy (seizures or loss of consciousness) when exposed to flashing lights, consult your doctor prior to using this software.

Discontinue use and consult your doctor *immediately* if you experience any of the following symptoms while using this software: dizziness, blurred vision, eye or muscle twitches, loss of consciousness, disorientation, or any involuntary movement or convulsion.

Precautions to Take During Use

- Do not stand too close to the screen.
- Sit a good distance away from the screen.
- Avoid using if you are tired or have not had much sleep.
- Make sure that the room is well lit.
- Rest for at least 10 to 15 minutes per hour of use.

Congratulations on your purchase of Rotary CLS-222!

Excellence is placed at the heart of every Arturia product, and Rotary CLS-222 is no exception. We are thrilled to bring you this accurate, precise, and enhanced emulation of what many musicians consider to be the best analog rotary speaker simulator ever made. Explore the presets, tweak a few controls, get lost in the features - dive as deeply as you like.

Be sure to visit the www.arturia.com website for information on all our other inspiring hardware and software instruments, effects, MIDI controllers, and more. They have become indispensable tools for many visionary artists around the globe.

Musically yours,

The Arturia team

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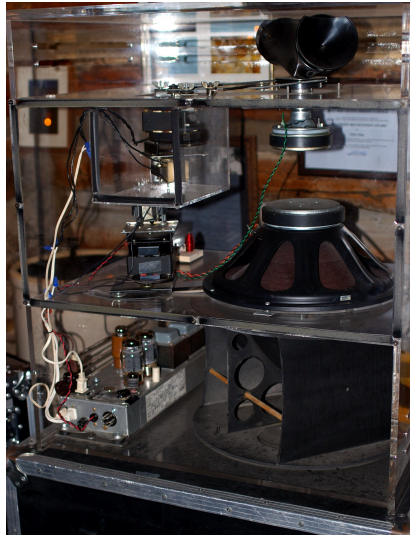
1. WELCOME TO ROTARY CLS-222!



Thank you for purchasing Arturia Rotary CLS-222. This audio effect plug-in for AAX, Audio Units, VST2, and VST3 formats is a precise and painstaking model of the legendary Dynacord CLS-222 rotary speaker simulator. The CLS-222 is an analog emulation of the most popular type of dual-rotor loudspeaker that was usually paired with drawbar organs. Though a product of the 1980s, it is considered an excellent and highly realistic rotary simulation even by today's standards – so much that German manufacturer Dynacord produced and sold it through 2003.

Units in good working condition are now vigorously hunted on the used market, as some players find the CLS-222 has an "X factor" they prefer even over today's best rotary effect pedals and software effects. Some even consider it the best rotary simulator ever created, period. We obsessed over every detail of the sound and behavior of the original to bring you this plug-in.

1.1. What's the big deal about rotary speakers?



*A rotary speaker in a clear Plexiglass cabinet for easy viewing of the parts.
Image: Hustvedt via Wikimedia Commons.*

The rotary speaker is one of the most recognized and imitated effects in music. Don Leslie, a radio engineer and organist, sought the sense of sound coming from all directions that is produced by a pipe organ, only in his living room. He reasoned that by directing speakers through a rotating horn (treble) and drum with a baffle (bass), the sound would literally be thrown all around the room and its reflections bounced back at the listener. He released his first commercial model in 1941. Tonewheel organ inventor Laurens Hammond infamously felt disdain towards Mr. Leslie's product, so it's ironic that the two men's creations would become inseparable in pop culture.

The rotary speaker sounded nothing like a pipe organ, but it had a sound all its own that caught the ears of jazz, Gospel, and rock keyboardists, not to mention guitarists who liked the trippy modulation it lent to their tone. To this day, even a mediocre organ sample is brought to life by a good rotary simulation, and even the most accurate modeled organ sound is ruined by a bad one.

1.1.1. How does a rotary speaker work?

In the most popular type of rotary speaker, the organ is first amplified by a power amp at the base of the cabinet. Bass and treble cross over at 800Hz. The treble goes to a compression tweeter mounted facing upward and firing into the base of a rotating horn, which redirects the sound sideways. This horn looks like a symmetrical "bow tie" but only one side carries sound; the other is closed and acts as a counterbalance so that the assembly rotates smoothly. Bass goes through a woofer facing downward into a spinning drum with a side-facing baffle.

The horn and drum turn in opposite directions and are driven by electric motors. Early rotary speakers had a single speed, then two speeds became the standard: slow to create spaciousness and fast to mimic the "tremulant" found on pipe organs.

1.2. Why is the Dynacord CLS-222 special?



The front panel of the CLS-222 was very simple.

The rotary speaker is extremely difficult to emulate electronically and the CLS-222 did it so well. When you think about it, a spinning speaker is a low-tech concept, but it produces a highly complex acoustic phenomenon. This includes *tremolo* (repeating variations in volume) because the openings in the horn and drum are moving towards and away from you, as well as subtle *vibrato* (repeating variations in pitch) thanks to the Doppler effect – the same reason that a fire truck's siren seems to fall in pitch as the vehicle passes by. But, from wherever the listener is in the room, there's a left-to-right component of the rotation, i.e. something like stereo panning. Then, there's the interplay of the direct and reflected sound, which includes phase-shifting that varies the harmonic content of the signal.

In other words, there's a *lot* going on!

Reproducing this accurately by electronic means and through stationary speakers is no small feat. But, like the tonewheel organ, a real rotary speaker is heavy and bulky, so a solid emulation was (and still is) a Holy Grail for gigging keyboardists. Many earlier portable "clonewheel" organs offered built-in rotary simulations, and most sounded cheesy and thin, without any real sense of sound moving in a circle.



Speed controls were recessed on the rear panel and both XLR and 1/4-inch outputs were provided.

But Dynacord absolutely nailed it – using the all-analog integrated circuits of the 1980s, no less. Interestingly, it started much like the rotary speaker itself: as a DIY project. Like Don Leslie, its designer simply wanted to capture a certain sound. After he had a working prototype, he found himself playing in a cover band with a representative of Dynacord, and the rest is history!

The first model was the CLS-22 and appeared in 1982. The better-known CLS-222 followed in 1988, and was identical except for adding an extra position to the stereo spread ("Basis") knob. The CLS-222 was expensive – £700 in '80s money – but Dynacord sold every unit they could make. Speeds could be toggled using a foot switch, and the build quality was as exceptional as the sound.

1.3. Why model the CLS-222?

Why did we emulate an emulation? Because, as with the other plug-ins of our FX Collection, we feel that sound explorers everywhere should have access to this historic and important effect. Many of the IC microchips used in the original are long discontinued, making hardware units in good condition expensive and rare.

Drawing on our legacy of TAE® (True Analog Emulation), we paid Rotary CLS-222 the same degree of attention to detail that the designer of the original CLS paid to the physical rotary speaker.

The rotary simulations built into today's better hardware organ clones and virtual instruments are good, and some are excellent. But who knows – one listen to Rotary CLS-222 and you may prefer it!

1.3.1. Feature summary

- **Pre-Amp:** Selectable op-amp (from original CLS-222) or valve (vacuum tube) with adjustable Drive
- **Rotor Balance:** Adjusts the mix of the bass and treble rotors relative to each other
- **Dry Bass** button (in lower toolbar) bypasses the bass rotor for a "straight" low end
- **Stereo Image:** Determines the width of the stereo spread; variable from mono to beyond super stereo
- **Speed Control:** Fast, slow, and stop positions
- **High-pass filter:** Rolls off bass frequencies upstream of pre-amp gain
- **Global Speed adjustment:** Separate for bass and treble rotors
- **Tempo sync:** Speed can free-run or sync to host tempo, including dotted and triplet feels; treble horn rate can also sync as a ratio of bass rotor speed
- **Distance:** Bass and treble rotors can be separately adjusted to move in a smaller or larger trajectory – something that would be impossible with a real rotary speaker! It can also go between clockwise and anticlockwise.
- **Visualizer:** Graphical representation of the trajectory, speed, rotor balance, distance, and stereo spread of bass and treble rotors
- **Preset library:** Musically useful presets from one of our best sound designers in a searchable browser interface
- **History:** Undo, redo, and go directly to any edit or control change you have made
- **Tutorials:** Interactive tour of all features and controls of Rotary CLS-222

2. ACTIVATION AND GETTING STARTED

2.1. Compatibility

Rotary CLS-222 works on computers and laptops equipped with Windows 8.1 or later or macOS 10.13 or later. It is compatible with the current generation of Apple M1 and M2, M1 and M2 Pro/Max/Ultra, and other Apple Silicon processors. You can use it as an Audio Unit, AAX, VST2, or VST3 plug-in within your favorite recording software, or as a standalone effect.



2.2. Download and Install

You can download Rotary CLS-222 directly from the [Arturia Products Page](#) by clicking either the Buy Now or Get Free Demo options. The free demo is limited to 20 minutes of operation.

If you have not already done so, now is a good time to create an Arturia account by following the instructions on the [My Arturia webpage](#).

Once you install Rotary CLS-222, the next step is to register the software. This is a simple process that involves a different software program, the **Arturia Software Center**.

2.2.1. Arturia Software Center (ASC)

If you haven't installed ASC yet, please go to this web page: [Arturia Downloads & Manuals](#).

Look for Arturia Software Center near the top of the page, and then download the installer version for the system you're using (Windows or macOS). ASC is a remote client for your Arturia account, letting you conveniently manage all your licenses, downloads, and updates from one place.

My Products		Welcome
	Prophet-5 V Faithful analog archetype Update from 1.0.0.2587 to 1.2.0.3420	Not activated • Activate
	Prophet-VS V Exploratory vector synthesizer Update from 1.0.0.2593 to 1.2.0.3420	Not activated • Activate
	Rev LX-24 Lush digital radiance Update from 1.0.0.3760 to 1.0.0.3771	Activated • Update
	Rotary CLS-222 1.0.0.4457	Activated •

After you complete the installation, do the following:

- Launch the Arturia Software Center (ASC).
- Log into your Arturia account from ASC's interface.
- Scroll down to the 'My Products' section of ASC.
- Click on the 'Activate' button next to the software you want to start using (in this case, Rotary CLS-222).

It's as simple as that!

2.3. Working with Rotary CLS-222 as a plug-in

Rotary CLS-222 can be used as a *plug-in* within all major Digital Audio Workstation (DAW) programs including Cubase, Digital Performer, Live, Logic, Pro Tools, Reaper, Studio One, and more.

Plug-ins have numerous advantages over hardware, including:

- You can use as many instances on different tracks as your computer can handle.
- You can automate the plug-in's settings via your DAW's automation feature.
- All settings and changes are saved with your DAW project, letting you pick up right where you left off.

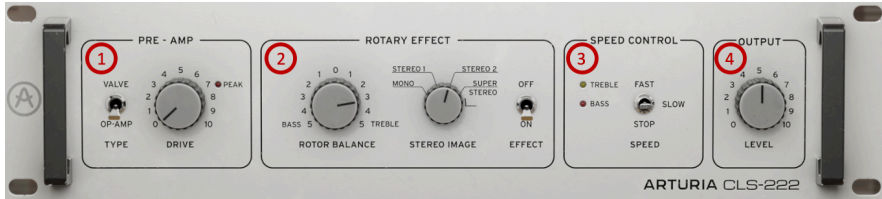
2.3.1. Audio and MIDI settings

Since Rotary CLS-222 is a plug-in, settings for audio and MIDI routing are handled in your recording software or DAW. They are generally located in some type of Preferences menu, though each product does things a bit differently. So, consult your recording software's documentation for information on how to select your audio interface, activate outputs, set the sample rate, assign MIDI ports, set project tempo, adjust buffer size, and the like.

Now that you've set up your software, it's time to get rotating!

"You spin me right 'round baby, right 'round, like a record, baby ..." – Dead or Alive

3. MAIN PANEL



The Main Panel duplicates the functions found on the front panel of the Dynacord CLS-222 and adds a couple of twists of our own, namely a choice of preamp type and an overall output level control. The [Advanced Panel \[p.16\]](#) adds even more functions, and we'll cover it in the next chapter.

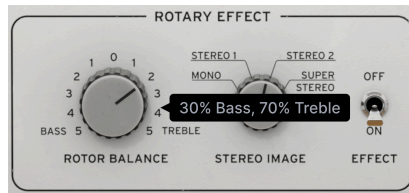
The Main Panel is divided into four areas:

Number	Area	Description
1.	Pre-Amp [p.10]	Sets the input level and lets you choose the preamp type
2.	Rotary Effect [p.12]	Adjusts the bass-treble rotor balance and stereo spread of the rotary simulation
3.	Speed Control [p.14]	Toggles the simulation between fast, slow, and stop
4.	Output [p.15]	Sets the output level of the processed signal

3.1. Common behaviors

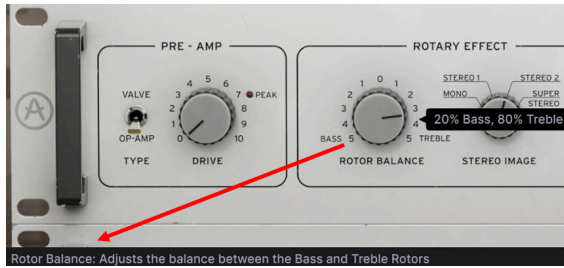
All Arturia FX Collection plug-ins share some common control behaviors to make editing sounds easier. (This applies to controls in the [Advanced Panel \[p.16\]](#) as well.)

3.1.1. Value pop-ups



Move or hover on any control and a pop-up banner or "tool tip" will display its value.

3.1.2. Parameter descriptions



Operating or hovering on any control also displays its name and a brief description of its function in the left corner of the [lower toolbar \[p.32\]](#).

3.1.3. Fine tuning

Hold the right mouse button or Control key while dragging on any knob to adjust it more slowly. This helps when you want to dial in precise values. If your mouse is equipped with a wheel, you can hold the Control key (Windows) or Command key (macOS) and use the wheel to fine-tune as well.

3.1.4. Double-click for default

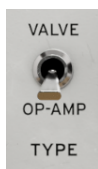
Double-click on any knob to return it to its factory default setting.

3.2. Pre-Amp



The Pre-Amp section controls the input level of the signal that then drives the rest of the CLS-222 effect.

3.2.1. Type



The original hardware used an op-amp for the input preamp. We've added the option of a valve (vacuum tube) model. You can select between them with this toggle switch.

Op-Amp: Chooses a model of the original op-amp from the Dynacord CLS-222.

Valve: Chooses a carefully crafted analog tube preamp.

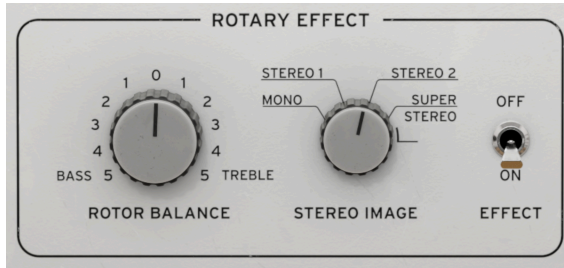
i The *Op-Amp* setting goes into hard clipping more readily as you increase the **Drive**. The *Valve* setting moves more progressively into distortion and sounds more round at low to moderate **Drive**. At high **Drive** settings, the two sound quite similar.

3.2.2. Drive



This knob simply sets the input gain level. On the original hardware, it was never intended to produce overdrive or distortion but only to pass as much hot, clean signal as possible to the rest of the signal path. In our version, both the Valve and Op-Amp models are capable of some overdrive at higher settings. The **Peak** light illuminates to indicate clipping when the **Pre-Amp Type** is set to *Op-Amp*. When set to *Valve*, "glow" coming from the top of the chassis provides visual feedback as you increase **Drive**.

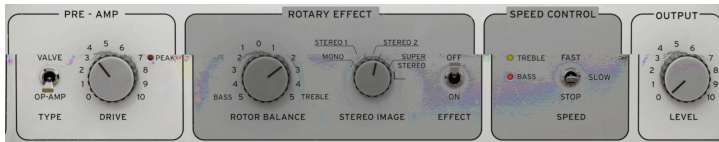
3.3. Rotary Effect



This area mainly controls the rotor balance and stereo spread of the virtual rotors. What about adjusting the fast and slow speed of each rotor? On the hardware, this was done by recessed pots on the rear panel because Dynacord assumed rotor speed was something most users would “set and forget.” In Rotary CLS-222, speed adjustment knobs are on the [Advanced Panel \[p.17\]](#).

3.3.1. Effect On/Off

When turned off, this toggle bypasses the rotary effect but preserves the sonic character of the CLS-222 preamp and analog circuitry. To reinforce this, inactive sections of the Main Panel become greyed-out, like so:



3.3.2. Rotor Balance

Turn this bipolar knob counter-clockwise to hear more of the bass rotor and less of the treble. Turn it clockwise to hear more treble rotor and less bass.

i The original hardware had a bass-forward rotor balance, set at 50/50. Rotary CLS-222 preserves this, but the factory default setting is 20 percent bass rotor and 80 percent treble rotor. Relative to the hardware, this actually provides a reference point that is flatter. Rotary CLS-222 is also loudness-compensated so that, unlike the hardware, adjusting the rotor balance will not cause large differences in overall loudness.

3.3.3. Stereo Image

The CLS-222 could vary the stereo spread of the effect, corresponding to how far apart stereo microphones to either side of a rotary speaker would be panned. The hardware offered four options:

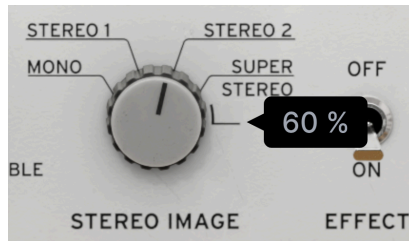
Mono: No stereo, as if mics were panned dead center.

Stereo 1: Panning at approximately 35 percent.

Stereo 2: Panning at approximately 65 percent.

Super Stereo: Panning at approximately 90 percent.

On the original hardware, this control was called **Basis** and was a four-position switch (the CLS-22 had three positions: Mono, Stereo, and Super Stereo). In Rotary CLS-222, it's continuously variable.



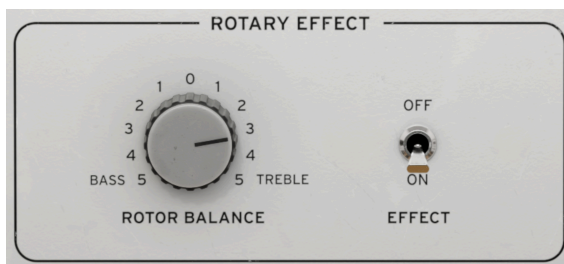
The CLS-222 hardware's stereo image knob was a four-position switch. Arturia's is continuous.

On the hardware, the *Super Stereo* position created less than a "hard-panned" stereo spread even though it was supposed to be 100 percent. Rotary CLS-222 preserves this character but also lets you turn the knob past *Super Stereo*. Fully clockwise, a value of 120 percent is equivalent to hard panning. In other words, "100 percent" means what it meant on the hardware and "120 percent" means full panning in a DAW or mixer.

3.3.3.1. Mono versus stereo operation

The original CLS-222 was intended to turn a mono input into a stereo output to achieve the best rotary effect, though it offered a mono output as well. Rotary CLS-222 relates mono to stereo in different ways depending on the type of track you place it on and which configuration of the plug-in you select.

Mono audio or virtual instrument track: Your DAW plug-in menu should show two options for Rotary CLS-222: *mono* and *mono-to-stereo*. If you select *mono*, Rotary CLS-222 will return a monaural signal and the Stereo Image knob becomes unavailable.



The Rotary Effect section of CLS-222 when used as a mono or dual mono plug-in

Stereo audio or virtual instrument track: Your DAW plug-in menu should show *stereo* and *dual mono* options. Dual mono means that both channels of an incoming signal are processed as separate monaural signals, and again, the Stereo Image knob is unavailable as above.

When used as a stereo or mono-to-stereo plug-in, Rotary CLS-222 offers a [Mono Input \[p.33\]](#) button in the [lower toolbar \[p.32\]](#), which sums the portion of the signal processed through the plug-in to monaural. The dry portion of the signal remains untouched.

3.4. Speed Control



This simple switch toggles the rotary effect between slow and fast speeds. There is also a stop option, which halts the rotors but preserves everything else about the effect. Two LEDs pulse in sync with the rotor speeds: yellow for treble and red for bass.



At the slow setting, the rotor speeds correspond to the LFO settings of the [Global Speed \[p.17\]](#) controls on the Advanced Panel. Set to fast, they are ten times that value in free-running mode and eight times as fast if [sync'd to tempo \[p.18\]](#).



Also, when free-running, the transition time of the virtual rotors from slow to fast, or fast to slow, mimics the behavior of the original CLS-222 hardware. When tempo-sync, the transition is near-instantaneous.

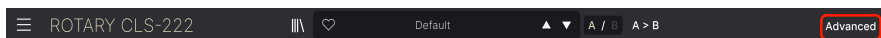
3.5. Output



Turn this knob to adjust the output level of the effect back into your DAW track. This can be useful for getting the track level just right without needing to adjust a fader you may have already automated.

Next up, we will look at the deeper settings in the [Advanced Panel \[p.16\]](#).

4. ADVANCED PANEL



Clicking the **Advanced** button at the right of the upper toolbar opens the Advanced Panel, which is home to the rotor speed adjustments found on the rear panel of the original hardware.

Beyond that, the plug-in adds an input high-pass filter, tempo sync and phase offset options for the virtual rotors, Distance settings that actually change the size shape of the rotors' trajectory (more about that later), and a dry/wet mix control that can be locked to a set value across [Preset \[p.36\]](#) changes.

Then, the cool [Visualizer \[p.22\]](#) provides graphic feedback about the state of the virtual rotors.



The Advanced Panel of Rotary CLS-222

The Advanced Panel contains five sections as follows:

Number	Section	Description
1.	Input [p.17]	Applies a high-pass filter to the signal
2.	Global Speed [p.17]	Adjusts speeds of the bass and treble rotors independently; sets tempo sync options
3.	Distance [p.20]	Changes the size and direction of the physical trajectory of the rotors
4.	Visualizer [p.22]	Gives visual feedback on rotor panning, distance, and rotor balance; sets rotor phase options
5.	Mix [p.25]	Adjusts the balance of dry and processed signals

4.1. Input



The sole knob in this section, **HPF**, applies a high-pass filter (a.k.a. low cut) to the incoming signal and is actually first in the signal chain, upstream of the [Pre-Amp \[p.10\]](#). The filter is open (off) at the zero knob position, then its cutoff frequency ranges from 20Hz to 20,000Hz as the knob is turned clockwise.

i The original CLS-222 hardware employed multiple non-adjustable high-pass filters because rotary speaker cabinets tend to emphasize bass frequencies. Rotary CLS-222 gives you control over these filters. The default position, which you can set by double-clicking the knob, is 40Hz. This matches the original hardware. You can disengage the filter altogether for richer bass, or raise the cutoff for a thinner sound. Set it too high, and you won't hear anything – unless you're a dog!

4.2. Global Speed



This section adjusts the speed of the bass and treble rotors, corresponding to the recessed control pots on the rear panel of the hardware CLS-222. There, the range of adjustment was somewhat limited. In Rotary CLS-222 it has been extended quite a lot.

4.2.1. Bass and Treble knobs

You can adjust the speed of the bass and treble rotors independently. The pop-up values you see will be in Hz if the rotors are free-running, or expressed as a division or multiplication of your host tempo when CLS-222 is [sync'd to tempo \[p.18\]](#), like so:



Rotor speed with CLS-222 free-running



Rotor speed with CLS-222 tempo-sync'd

4.2.1.1. Relationship to fast and slow speeds

The values displayed when you turn the **Bass** or **Treble** Global Speed knobs show the rotation rate when the [Speed Control \[p.14\]](#) is set to **Slow**. When switched to **Fast**, the rates are:

- Free-running: 10 times the pop-up value
- Tempo-sync'd: 8 times the pop-up value



The 10x factor matches the original hardware. For tempo-sync'd modes, we chose the factor of 8x to keep everything in sync rhythmically.

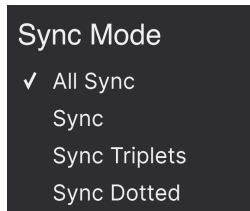
4.2.2. Tempo sync



Rotary CLS-222's virtual rotors may free-run in Hertz or be synced to your project tempo as set in your DAW or other host software. Flip the toggle switch to choose one or the other. Ratios range from 8 to 1/8 times the duration of a musical bar in your project.

4.2.2.1. Tempo sync options

Click on **Sync Mode** to display the following menu:



Select a mode to close the menu box.

- **Sync:** Tempo is synced "straight" with no swing feel; a quarter-note = two eighth-notes.
- **Sync Triplets:** Tempo is synced with a triplet feel; a quarter-note = three eighth-notes played in the space of two.
- **Sync Dotted:** Tempo is synced with a dotted feel; a quarter-note = a dotted eighth-note followed by a sixteenth-note.
- **All Sync:** Straight, triplet, and dotted ratios are all present serially when you turn either knob.

4.2.3. Treble Ratio



In both free-running and tempo-synced modes, engaging this toggle switch makes the speed of the treble rotor a ratio of the speed of the bass rotor. The range is from 4:1 to 1:4.



Tempo sync and ratio options offer creative possibilities for tying CLS-222's modulation to the rhythm of your song. But from a realism standpoint, it's important to remember that neither the original CLS-222 nor the rotary speaker it emulated had any such capabilities.

4.3. Distance



The Distance parameters change the size and shape of the trajectory of the bass and treble rotors independently. On many plug-ins, a “distance” setting usually varies the distance of virtual mics from the source, but something a bit different is happening in Rotary CLS-222. The Distance settings modulate both volume and filtering to give the all-important impression of the sound being closer or farther from the listener depending on the position of the virtual rotors.

By *trajectory*, we mean the size and shape of the pathway in which the rotor moves. This affects how far away the sound seems when the rotor is pointed 180 degrees away from you, how close it seems when the rotor is pointed right at you, and how far it seems to travel in between. If you think of the basic rotary effect as the earth spinning on its axis, Distance can be likened to the earth’s orbit around the sun.

4.3.1. Bass and Treble knobs

Turn either knob to change the size of the trajectory of the corresponding rotor.

i Since these are bipolar knobs, turning a knob counter-clockwise from zero and the other clockwise from zero will imitate the bass and treble rotors spinning in opposite directions – which is the way a vintage rotary speaker works.

4.3.2. Trajectory Shape

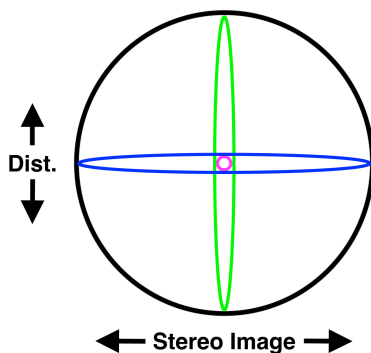


Rotary CLS-222 lets you adjust the shape of the rotors's path as well as the size, which would be difficult if not impossible using a physical rotary device. Use this three-position switch to select a shape.

- **Circle:** Rotors move in a simple circle as with a vintage rotary speaker
- **Horizontal 8:** Rotors move in a horizontal figure-8 pattern
- **Comb:** Rotors move in a dual horizontal figure-8, each making four "loops"

4.3.3. Relationship between distance and stereo image

The controls in the Distance section interact with the [Stereo Image \[p.13\]](#) knobs on the Main Panel. This allows for a wide variety of shapes and sizes of trajectories.



The above diagram illustrates the rotor trajectories at four pairs of extreme settings:

- **Violet:** Mono, zero distance
- **Blue:** Maximum stereo, zero distance
- **Green:** Mono, maximum distance
- **Black:** Maximum stereo, maximum distance

Intermediate settings will produce trajectories of varying shapes and sizes. We're using the Circle shape to keep the illustrations simple, but the above principles also apply to the Horizontal 8 and Comb shapes.

4.4. The Visualizer



*The Visualizer in Rotary
CLS-222*

In the center of the Advanced Panel is a Visualizer, which gives animated graphical feedback about how the rotors are moving as well as their mix balance. It displays two moving dots.

- **Red:** Bass rotor
- **Yellow:** Treble rotor

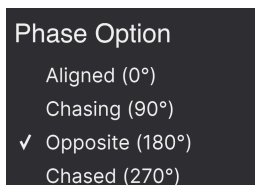
The dots move in trajectories according to the Stereo Image and Distance settings for each rotor, tracing pathways like those in the [diagram \[p.21\]](#) above. Hold some notes, move the Stereo Image and Distance knobs for either rotor, and watch the dots' movement change. How fast they move is a factor of the Slow/Fast selection and Global Speed settings.

The brightness of the dots represents rotor balance, with a brighter dot indicating that the corresponding rotor is louder and a dimmer one indicating it is softer.

4.4.1. Phase



Rotary CLS-222 is enhanced with the ability to change the phase relationship between the two rotors, i.e. how they move in relation to one another. Click at the bottom left of the Visualizer to bring up this menu:



- **Aligned (0°):** The two rotors begin moving in perfect phase with one another, i.e. at the same spot in the trajectory.
- **Chasing (90°):** The bass rotor follows behind the treble.
- **Opposite (180°):** The two rotors begin moving perfectly out of phase with one another, i.e. at opposite ends of the trajectory.
- **Chased (270°):** The treble rotor follows behind the bass.

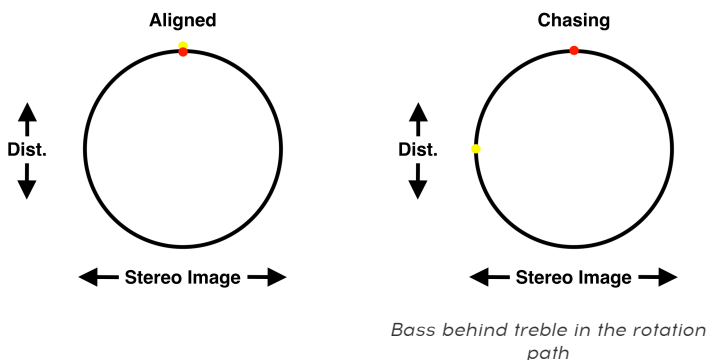
Changing these settings has a subtle but definitely perceptible effect on the rotation, and the higher the Stereo Image and Distance controls are set, the more you will hear it.

4.4.1.1. Phase Reset

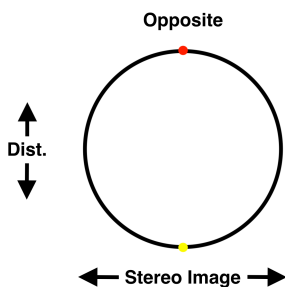
The Reset button restarts the rotation cycle at the beginning of each rotor's phase. Where's the beginning? That depends. With phase set to *Aligned*, for example, both rotors would be panned in the center in terms of stereo and closest to you in terms of Distance. Set to *Chasing*, the phase would start with the bass rotor centered and closest and the treble offset by 90 degrees along its pathway.

4.4.1.2. Understanding rotor phase

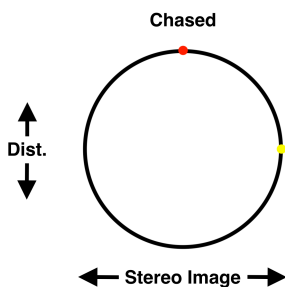
Let's illustrate the phase start points using the same diagram idea as before. We'll assume a circular trajectory to keep the diagrams simple, but the same ideas apply to the Horizontal 8 and Comb trajectory shapes as well. First, *Aligned* and *Chasing*:



Now, *Opposite* and *Chased*:



*Bass and treble rotors 180
degrees out of phase*



*Treble behind bass in the rotation
path*

Remember that these are only the starting points that would be set by a phase reset. CLS-222 is always in motion (unless you select *Stop* in the Speed Control), and the best way to relate what you hear to imaginary rotor positions is to watch the Visualizer as you experiment with the Distance and Global Speed settings.

4.4.1.3. More about the Visualizer



If you see a single orange dot as above, that means the bass and treble rotors are in the exact same spot along the trajectory. You can set the [Speed Control \[p.14\]](#) to *Stop* to watch this happen. Also, anytime you hover the mouse over the Visualizer, an on/off toggle appears in its upper right corner. This does not affect the sound; it just turns off the visual animations.

4.5. Mix



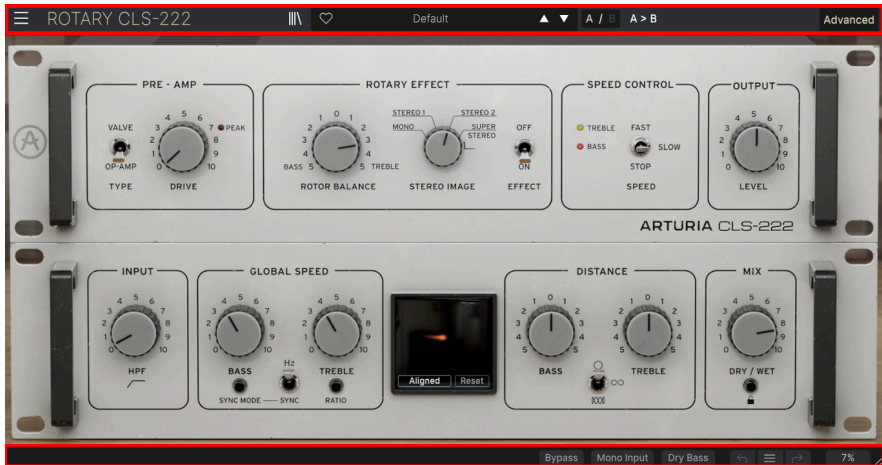
The last stop on the Advanced Panel is a simple dry/wet mix knob. For organists, a rotary speaker is the only thing amplifying their instrument. The knob should be set all the way clockwise (wet) to reflect this. Likewise, musicians usually set up the hardware CLS-222 directly inline, not as a send-and-return effect.

However, some organists used a stationary tone cabinet or combo amp alongside a rotary speaker, and a mix of dry and wet signals would reflect *this*. These are only the most common use cases – you might use CLS-222 in creative ways never imagined for a rotary effect!

4.5.1. Mix Lock

Note the padlock icon at the bottom of the Mix section. When it is engaged, the current dry/wet balance stays the same when you change Presets. This is useful for auditioning different presets while hearing a consistent amount of the overall effect.

5. THE TOOLBARS



The toolbars above and below the main control area of Rotary CLS-222 contain a number of important functions for Preset selection, housekeeping, and other utility settings.

The Upper Toolbar includes:

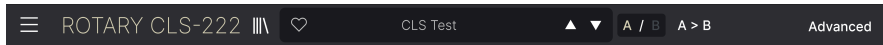
- The [Main Menu](#) [p.27]
- The Preset Name Pane and [Preset Browser](#) [p.39]
- Switching and copy options for [A and B settings](#) [p.31]
- The button to open the [Advanced Panel](#) [p.16]

The Lower Toolbar includes:

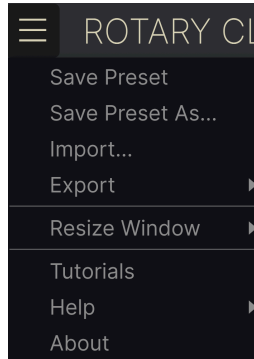
- The [parameter description area](#) [p.10]
- A [Bypass](#) button [p.33]
- The [Mono Input](#) button [p.33]
- The [Dry Bass](#) [p.33] button
- [Undo, Redo, and History](#) [p.33]
- The [CPU Meter](#) [p.34] and [Panic](#) [p.34] functions
- A [corner grab handle](#) [p.35] for resizing the CLS-222 window

5.1. Upper Toolbar

Let's start with the Upper Toolbar, covering its functions from left to right.



5.1.1. Main Menu



Clicking the “hamburger” icon (three horizontal lines) in the top left corner of the upper toolbar opens the Main Menu, a drop-down menu that lets you access a number of useful functions related to Preset management and more.

5.1.1.1. New Preset

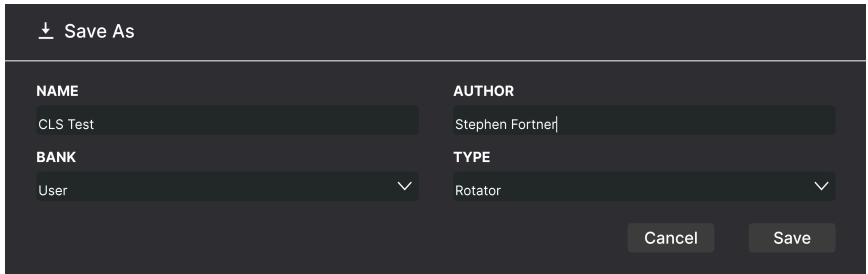
Creates a new Default Preset with initialized settings for all parameters.

5.1.1.2. Save Preset

Overwrites the current Preset with any changes you have made. This applies only to user presets, so this option is greyed out for factory presets.

5.1.1.3. Save Preset As...

This option saves the current settings of Rotary CLS-222 under a new Preset name. Clicking this option reveals a window where you can name your Preset and enter more detailed information about it:



↓ Save As

NAME CLS Test	AUTHOR Stephen Fortner
BANK User	TYPE Rotator

Cancel Save

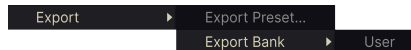
 The Bank, Author, and Type fields are all useful when searching for Presets in the [Preset Browser](#) [p.39].

5.1.1.4. Import...

This command lets you import a Preset file or entire Bank stored on your computer. It opens a navigation window in your computer's OS to find the proper files.

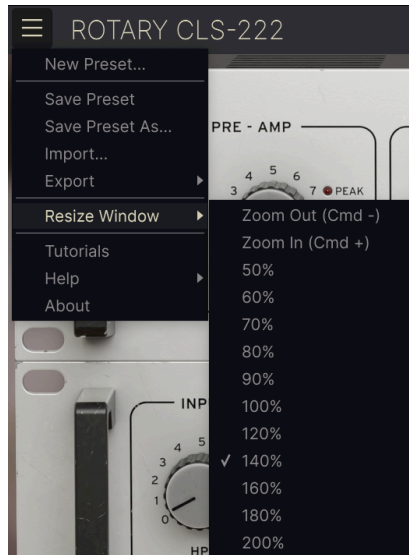
5.1.1.5. Export...

You can export Presets to your computer in two ways: as a single Preset, or as a Bank. In either case, an OS-level navigation window lets you specify where to save the file(s). Both individual Presets and Banks have the filename extension .CLSX.



- **Export Preset...:** Exporting a single Preset is handy for sharing a preset with someone else. The saved preset can be reloaded using the **Import** menu option.
- **Export Bank:** This option exports an entire Bank of Presets, which is useful for backing up or sharing many Presets at once. Saved Banks can be reloaded using the **Import** menu option.

5.1.1.6. Resize Window

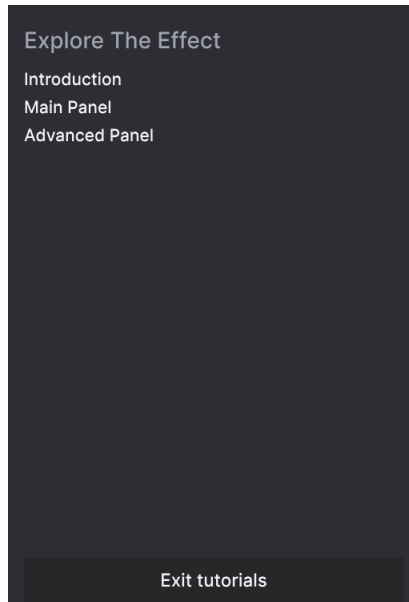


Rotary CLS-222 can be resized from 50% to 200% of its default size (100%) without any visual artifacts. On a smaller screen, such as a laptop, you may want to reduce the interface size so it doesn't dominate the display. On a larger screen or a second monitor, you can increase the size to get a better view of the controls and graphics.

You can also perform this operation using keyboard shortcuts: every time you press CTRL- (Windows) or CMD- (macOS), the window will shrink by one size increment, and every time you press CTRL+ (Windows) or CMD+ (macOS), the window will grow by one size increment.

In addition, you can click-drag the [resize handle \[p.35\]](#) at the right of the lower toolbar to make the CLS-222 window any size.

5.1.1.7. Tutorials



Rotary CLS-222 comes with interactive tutorials that walk you through different features of the plug-in. Clicking this option opens a pane on the right side of the window where the tutorials appear. Select one to access step-by-step descriptions that highlight the relevant controls and walk you through the process.

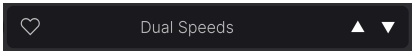
5.1.1.8. Help

Get more help by visiting links to this user manual and Frequently Asked Questions pages on Arturia's website. You will need an internet connection to access these pages.

5.1.1.9. About

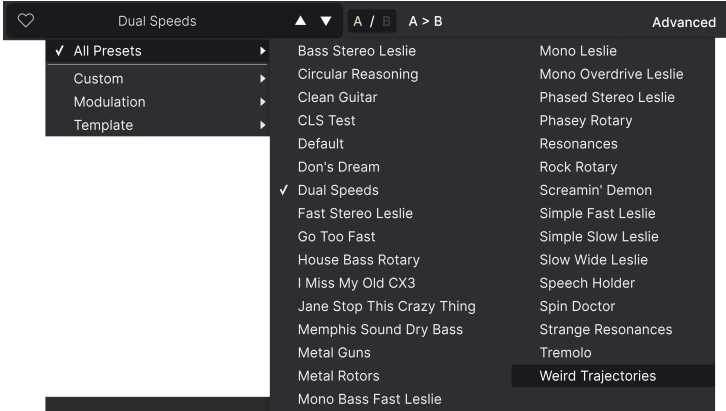
Here you can view the software version and developer credits. Click again anywhere on the screen (outside the About window but inside the plug-in) to make this pop-up window disappear.

5.1.2. Preset Browser access and Name Pane



The Preset Name Pane

Clicking the “books on a shelf” button opens the [Preset Browser \[p.39\]](#), which offers a myriad of ways to browse, sort, and organize Presets in Rotary CLS-222.



Clicking on the Preset name also opens up quick drop-down menus for selecting Presets outside of the Browser, as shown above. You can select to look at lists of Presets organized by Type, as shown above, or look at All Presets at once.

Everything you need to know about managing Presets is covered in detail in [the next chapter \[p.39\]](#). This includes working with Favorites, which are tagged by clicking the heart icon.



Note: An asterisk just after the name in the Preset Name Pane (*) indicates that you’ve edited that Preset.

5.1.3. Dual settings and copy



Preset state A active with the option to copy settings to B



Preset state B active with the option to copy settings to A

Each Preset is actually two Presets in one! Using the A and B buttons, you can switch between two completely different sets of knob settings for the [Main Panel \[p.9\]](#), and the [Advanced Panel \[p.16\]](#). These are saved within each Preset.

When A is active, clicking **A > B** will copy the A settings to B. When B is active, clicking **A < B** will copy the B settings to A.

 ! When you edit settings in a Preset and close your DAW project without saving the Preset, the changes will be remembered when you reopen it – but they will be recalled in Slot A. That means that editing settings in Slot B and closing your DAW without saving them will move those settings over to Slot A when you reopen the project – and Slot B will be blank. Save often!

5.1.4. Advanced Button

A dark rectangular button with the word "Advanced" in white text.

Near the upper right corner of the top toolbar is the **Advanced Button**. This opens up a panel of extended controls, which we cover in detail in the [Advanced Panel \[p.16\]](#) chapter.

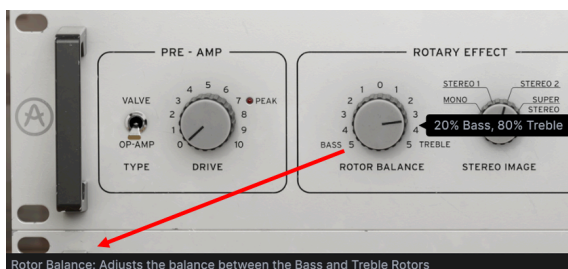
5.2. Lower Toolbar



Lower toolbar, left side

The Lower Toolbar of the Rotary CLS-222 interface can be thought of in terms of left and right halves. On the left is the Control Description display, and on the right are buttons for several useful utility functions.

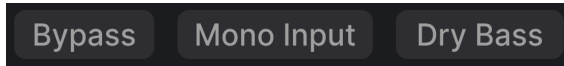
5.2.1. Parameter Descriptions



This Control Description pops up when you mouse over the Rotor Balance knob in the Main Panel

Operate or hover on any knob, button, icon, or other control, and a brief description of what it does appear in the lower left-hand corner.

5.2.1.1. Bypass



The Bypass, Mono Input, and Dry Bass buttons

The **Bypass** button bypasses the Rotary CLS-222 plug-in entirely. Among its uses are doing a quick comparison of dry versus processed signal without having to bypass the plug-in at the DAW level.

5.2.1.2. Mono Input

To the right of Bypass is the Mono Input button. When Rotary CLS-222 is placed on a stereo track (audio track or virtual instrument), this button appears. Engaging it will feed the plug-in a summed mono signal regardless of the panning status of the stereo track in the DAW.

Any dry portion of the sound according to the [Mix \[p.25\]](#) knob will still be in stereo (assuming a stereo input signal).

5.2.1.3. Dry Bass

When engaged, this button bypasses the bass rotor so that lower frequencies do not pass through the rotary effect. It preserves the character of the preamp and crossover filters. This creates a stationary, unmodulated bass sound.



Organists sometimes disconnected power to their bass rotor motors. This is sometimes called the "Memphis sound." The technique was also used by jazz musicians who played bass on the organ pedals, as the dry bass sound was desirable for holding down the groove.

5.2.2. Undo, Redo, and History

When editing a plug-in, it's all too easy to overshoot the sweet spot for one or more controls, and then wonder how to get back to where you were. Like all Arturia plug-ins, Rotary CLS-222 offers comprehensive Undo, Redo, and History functions so that you always have a safe way back.

Use the arrows to go back and forward one control movement at a time.

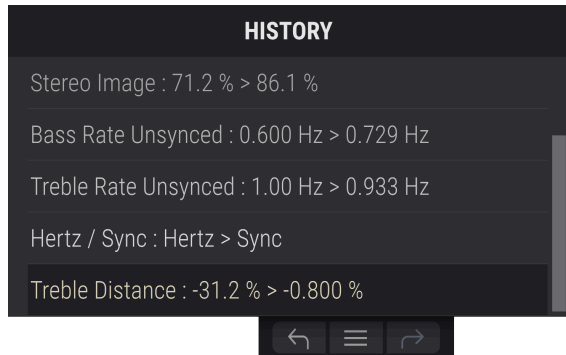
5.2.2.1. Undo

Click the left arrow to revert to the state before the most recent edit you made. You may click repeatedly to undo several edits in reverse time order.

5.2.2.2. Redo

Click the right arrow to redo the most recent edit you undid. If you have undone several, you may click repeatedly to redo them in forward time order.

5.2.2.3. History



Click the center “hamburger” (three lines) button to open the History window, as shown above. This provides a step-by-step account of every move you have made in Rotary CLS-222. Clicking on an item in the list not only re-executes that move – it returns the plug-in to the overall state it was in when you first made that move.



Note that the A and B controls settings within a Preset have separate Undo Histories.

5.2.3. CPU Meter

At far right is the **CPU Meter**, which displays the overall load Rotary CLS-222 is placing in your computer CPU. Since it deals only with this plug-in, it is not a substitute for the resource metering tools in your DAW.

5.2.3.1. Panic

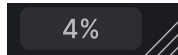


*Mousing over the CPU Meter accesses the
PANIC function*

Mouse over the CPU Meter, and it will display the word PANIC. Click to send an all-sounds-off command that silences any sound processed through Rotary CLS-222. This is a momentary command, so sound will resume if your DAW is still playing.

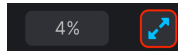
In the event of serious runaway audio (say, from an unrelated delay effect that has gone into a feedback loop), stop your DAW playback and disable the plug-in causing the problem.

5.2.4. Resize handle



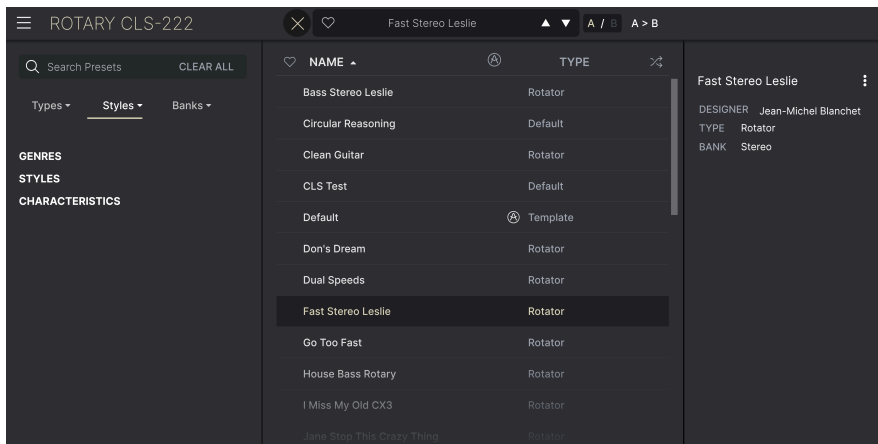
Grab and drag the diagonal lines to the right of the CPU meter to resize the CLS-222 window. This lets you get achieve sizes in between increments in the [Resize Window \[p.29\]](#) menu if that better suits your screen layout.

5.2.4.1. Max View button



Sometimes, you may see the above button with two diagonal arrows appear over the resize handle. This happens when, for some reason, the window size is not displaying all of the controls of CLS-222. Click it to restore a full view of the open controls.

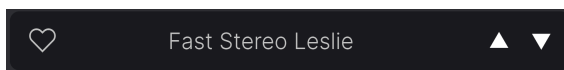
6. SELECTING PRESETS



Rotary CLS-222 lets you browse, search, and select Presets from a browser-like interface inside the plug-in. You can also create and save your own Presets in the User Bank. Of course, the state of any instance of the plug-in – including the current Preset – is automatically saved when you save your DAW project, so you can always pick up where you left off.

First, we will cover Preset functions from the Upper Toolbar in more depth.

6.1. Preset Name Pane



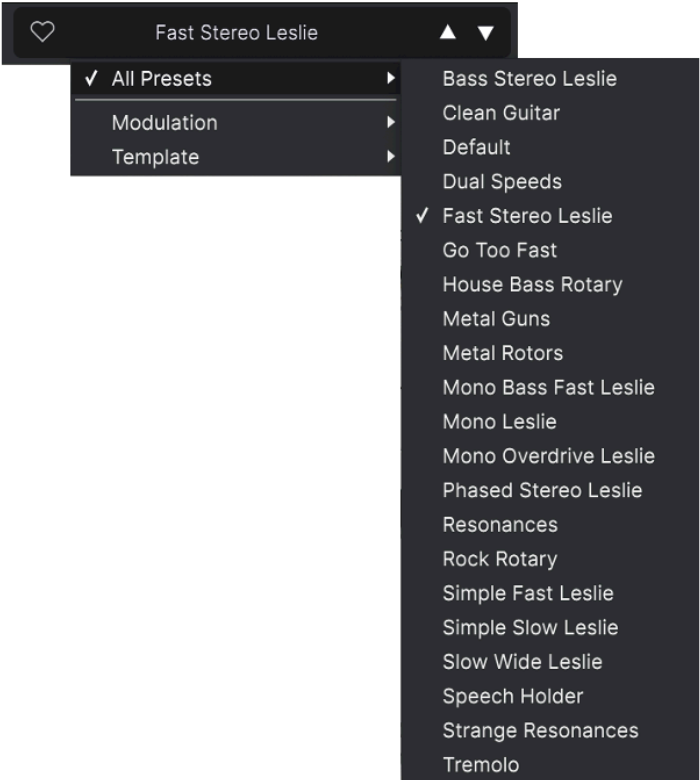
The name pane at top center is always displayed whether you're in the main controls view or the Preset Browser. It displays the name of the current Preset, obviously, but also offers further ways to browse and load Presets. Again, a filled-in heart icon indicates a liked Preset.

6.1.1. The Arrows

The up and down arrows to the right of the Preset name step serially through Presets. This is limited by the results of any currently active search, i.e. the arrows will only step through those Presets. So, make sure any searches are cleared if you simply want to step through all available Presets until you find something you like.

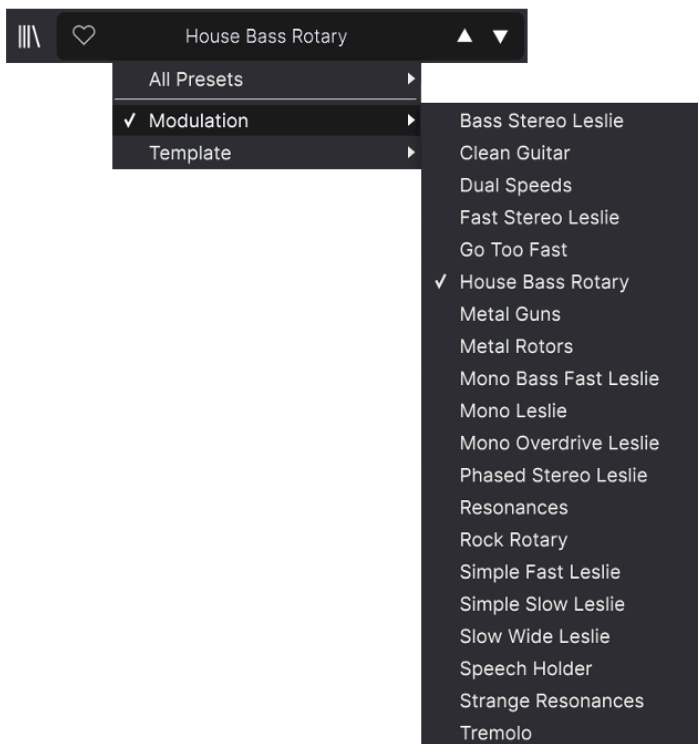
6.1.2. Quick Browser

As mentioned briefly in the previous chapter, you can click on the Preset name in the center of the upper tool bar to bring up a drop-down Quick Browser for Presets. The first option in this menu is called All Presets, and it brings up a submenu of literally every Preset in the current Bank:



All presets

Below this are options that correspond to the [Types \[p.40\]](#). Each of these brings up a submenu of all Presets of its Type:



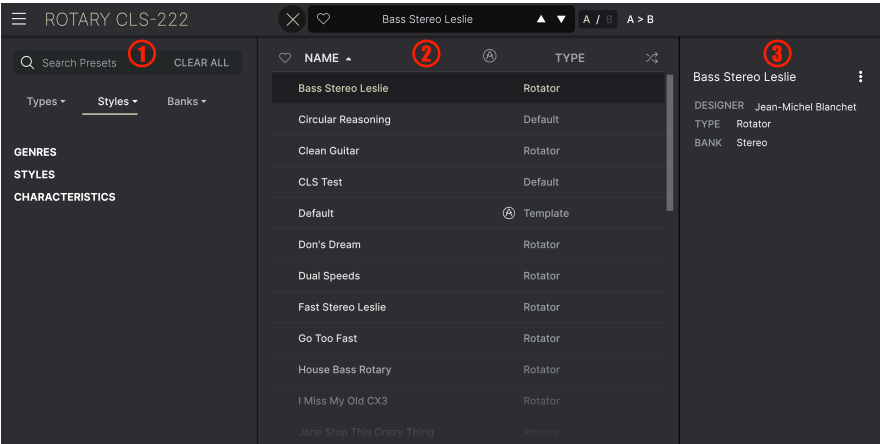
Selecting Modulation from the drop-down menu shows all the Presets of this type.

Unlike the up and down arrows, the “All Presets” submenu is independent of search criteria – it simply shows you every Preset available. Likewise for the Type choices below the line, which always include all Presets within that Type.

6.2. The Preset Browser

Click the “books on a shelf” icon (four vertical and tilted lines) in the Upper Toolbar to access the Preset Browser. When the Preset Browser is open, the icon becomes a large X, and is used to close the Browser when you’re done.

The three main areas of the Preset Browser are as follows:

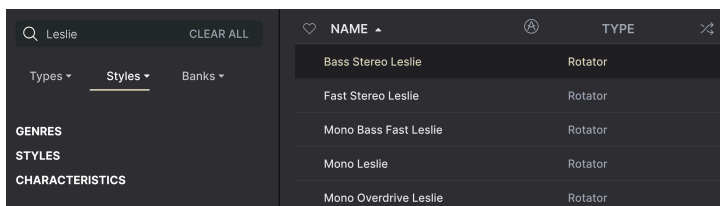


Number	Area	Description
1.	Search [p.39]	Searches for Presets by text entry with filters for Type, Style, and Bank.
2.	Results Pane [p.42]	Displays search results, or all Presets if no search criteria are active.
3.	Preset Info [p.44]	Displays Preset Details; can edit details for Presets in User Bank.

6.3. Searching Presets

Click on the Search field at the top left and enter any search term. The browser will filter your search in two ways: First, simply by matching letters in the Preset name. Second, If your search term is close to that of a [Type or Style \[p.40\]](#) it will include results fitting those tags as well.

The Results Pane will show all Presets that fit your search. Click the **CLEAR ALL** text to clear your search terms.

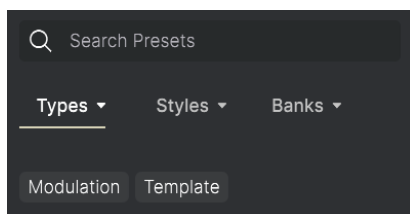


Filtering by typing the text ("Leslie") in the Search field

6.3.1. Using Tags as a Filter

You can narrow (and sometimes expand) your search using different *tags*. There are two kinds of tags: **Types** and **Styles**. You can filter by one, the other, or both.

6.3.1.1. Types



Types are categories of audio effects: filter, distortion, modulation, and so on. With a clear search bar, click the **Types** drop-down to bring up the list of types. Types sometimes include sub-types (especially in more complex Arturia effect plug-ins) but Rotary CLS-222 is relatively simple, so Rotator is the primary type you will see.

The display order of the Name and Type columns can be inverted by clicking the arrow buttons to the right of their titles.

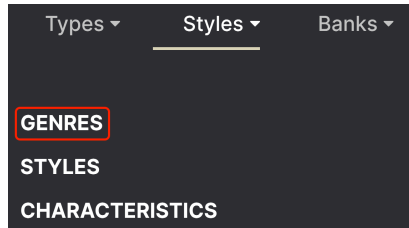


♪ You can specify the type when [saving a Preset \[p.28\]](#). That Preset will then show up in searches where you've selected that Type.

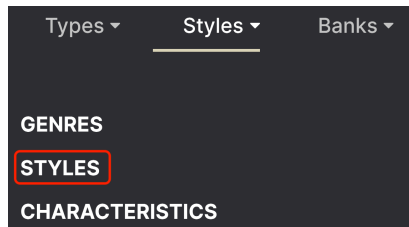
6.3.1.2. Styles

Styles are, well ... exactly that. Accessed by the **Styles** button, this area has three further subdivisions:

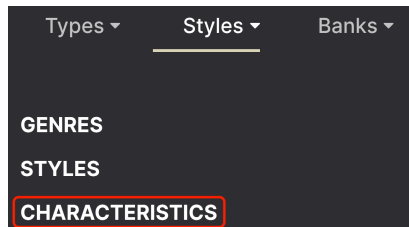
- *Genres*: Identifiable musical genres such as Ambient, Bass Music, Industrial, etc.:



- *Styles*: General "vibe" such as Bizarre, Metallic, Slammed, etc.:



- *Characteristics*: Even more detailed audio qualities such as Filtered, Resonant, Mechanical, Noise, and more:



Click any one, and the results will show only Presets that match that tag. Notice that when you select any tag, several other tags usually grey out and become unavailable. This is because the browser is *narrowing* your search by a process of elimination.

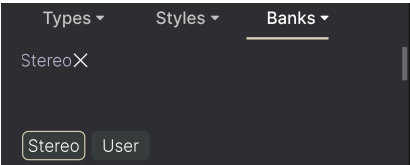


Note that this is the opposite of how selecting multiple Types *broadens* your search.

Deselect any tag to remove it and widen the search without having to start all over again. You can also clear the tag by clicking the X to the right of its text, which appears at the top.

Note that you can search by a string of text, Types and Styles, or both, with the search becoming narrower as you enter more criteria. Clicking **CLEAR ALL** in the search bar will remove all Type and Style filters as well as any text entry.

6.3.2. Banks



To the right of the **Types** and **Styles** drop-downs is the **Banks** drop-down, which lets you do your search (using all the methods above) within the Factory or User Banks.

6.4. The Results Pane

NAME ▲	TYPE
Bass Stereo Leslie	Rotator
Fast Stereo Leslie	Rotator
Mono Bass Fast Leslie	Rotator
Mono Leslie	Rotator
Mono Overdrive Leslie	Rotator
Phased Stereo Leslie	Rotator
Simple Fast Leslie	Rotator
Simple Slow Leslie	Rotator
Slow Wide Leslie	Rotator

The central area of the browser shows search results, or simply a list of all Presets in the Bank if no search criteria are active. Simply click on a Preset name to load it.

6.4.1. Sorting Presets

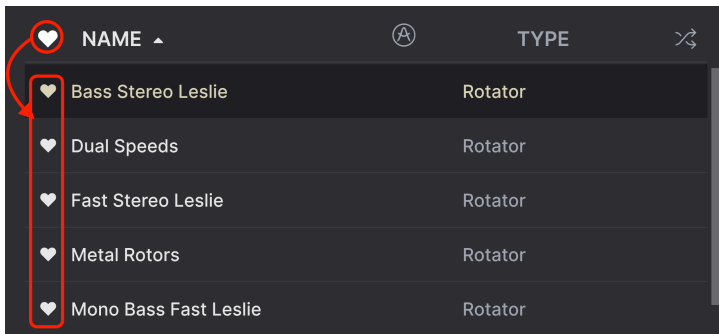
Click the **NAME** header in first column of the Results list to sort the results list of Presets in ascending or descending alphabetical order.

Click the **TYPE** header in the second column to do the same thing by Type.

6.4.2. Liking Presets

As you explore and create Presets you can mark them as Liked by clicking the heart icon next to their names. (This icon also appears in the Upper Toolbar's [Preset Name Pane \[p.36\]](#).

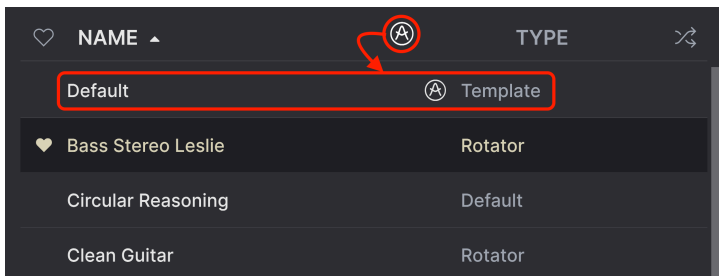
Clicking on the heart icon makes all of your liked Presets show up at the top of the results list, as shown here:



A filled-in heart icon indicates a Liked Preset. An outline indicates a Preset that has not been Liked (yet). Click the heart at the top of the list again to return the list to its previous state.

6.4.3. Featured factory Presets

Presets accompanied by the Arturia logo are factory creations we think really showcase the capabilities of Rotary CLS-222.



Clicking the Arturia icon at the top of the Results pane sorts all featured Presets to appear at the top of the list.

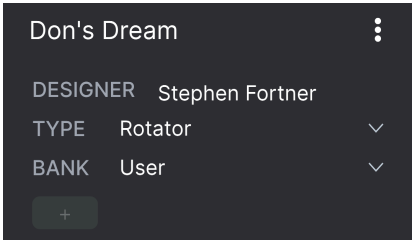
6.4.4. Shuffle Button



This button randomly reorders the Preset list. Sometimes it can help you find the sound you're looking for more quickly than scrolling through the entire list.

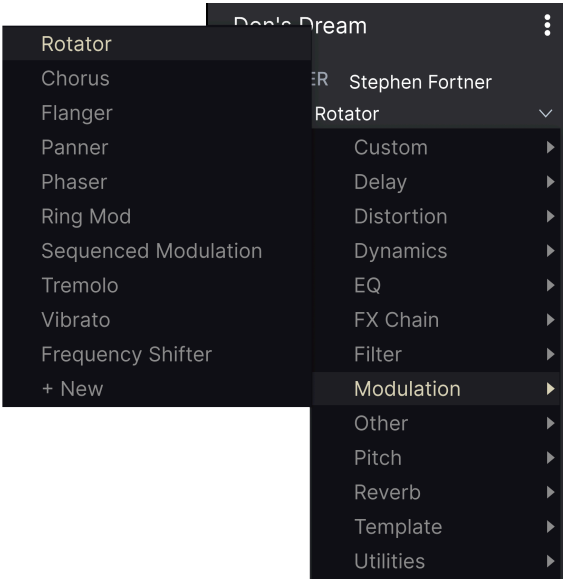
6.5. Preset Info Section

The right side of the browser window shows specific information about each Preset.



For Presets in the User bank (as the result of a *Save As* operation), you can enter and edit the information in the Preset Info Section and it will update in real time. This includes the designer (author), Type, all Style tags, and even a custom text description at the bottom.

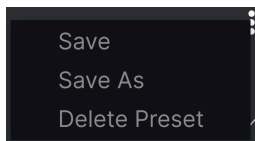
To make the desired changes, you can type directly in the text fields or use one of the pull-down menus to change the Bank or Type. As shown here, you can also use a hierarchical menu to select the Type or even create a new Type or Subtype.



 Types and Styles changes you make here are reflected in searches. For example, if you remove the "Bright" Style tag from a Preset and then save that Preset, it will not show up in future searches for Bright Presets.

6.5.1. Preset Info Quick Menu

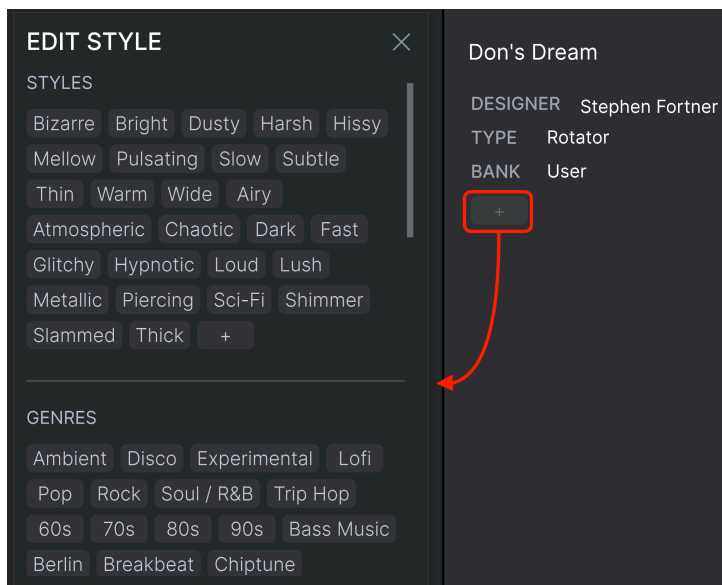
Clicking the icon with three vertical dots brings up a quick menu for Save, Save As, and Delete Preset operations:



For sounds in Factory banks, only **Save As** is available.

6.5.2. Edit Style

You can also create your own Style tags to help refine searches according to criteria that matter most to you. Clicking on the + icon in the list in the Preset Info pane opens the Edit Style pane, where you can create as many new tags as you'll ever need:



6.5.3. Editing Info for Multiple Presets

It's easy to edit information such as Types, Styles, designer name, and text description for several presets at the same time. Simply hold CMD (macOS) or CTRL (Windows) and click the names of the Presets you want to change in the Results list. Then enter the comments, change the Bank or Type, etc., and save.

 NAME ▲		TYPE	
 Dual Speeds		Rotator	
 Fast Stereo Leslie		Rotator	
 Go Too Fast		Rotator	
House Bass Rotary		Rotator	
I Miss My Old CX3		Rotator	
Jane Stop This Crazy Thing		Rotator	
Memphis Sound Dry Bass		Rotator	

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