



SW Version **23-05**

Date 2023-01-30

## **23-05** Spring 2023 Update



The C15 gets a major update that provides lots of enhancements and new features.

### Parameter Enhancements

#### Modulateable Parameters

The number of modulateable Parameters has been increased - most Parameters are now modulateable:

- Envelope *Amounts* (for Oscillator Phase Modulation, Filter Pitches and Cutoff)
- Envelope *A/B/C* - Attack Curve (effective when a Key is pressed)
- Pitch (3x) and Filter (5x) *Key Trackings*
- Shaper *Mixes* (for Phase Modulation) and *Fold, Asym* (including Shaper A/B, Feedback/Output Mixer, Cabinet)
- Output Mixer *Pan*
- Effects (*Flanger, Cabinet, Gap Filter, Echo, Reverb*) - all Parameters
- Scale *Offsets* (blending between two scalings via modulation)
- Part *Split Point* - when unlinked, the parameter can now be modulated individually per Part



The modulation mechanism has also been refined, modulated parameters now behave more consistent.

Rounding issues of displayed modulation ranges (for example unstable upper/lower limits) have been removed and discrepancies between displayed and audible parameter positions (especially the **Part *Split Point*** parameter) should no longer occur.

## Parameter Ranges

Several Parameter ranges have been extended, providing more flexibility:

- **Envelope A/B/C - Attack/Release Velocity** (now bipolar, similar to Decay 1/2 Velocity, times can be reduced or increased)
- **Pitch (3x) and Filter (3x) *Key Trackings*** - new maximum at 200%
- **Envelope A/B/C - Time Key Tracking** (now bipolar, times can be reduced or increased)
- **Shaper A/B *FB - Gate - EnvC*** (now bipolar, allowing for permanent feedback)
- **Output Mixer *Key Pan*** (now bipolar)
- **Unison *Detune*** - new maximum at 24 st

## Parameter Scaling and Rounding

Scaling and Rounding behavior has been reworked:

- **Scale *Offsets*** - modified Parameter scaling (high precision for typical +/- 100.0 ct range, spanning approximately half of the slider - lower precision for atypical +/- 1200.0 ct range)
- **All Parameters** - consistent display of values (Control Positions and Modulation Amounts) according to Parameter resolution (every Fine value has a distinct representation)

## Envelope C

- Decay 1/2 Velocity - more flexible velocity influence on times (similar to Envelope A/B)
- **New: Loop**

With the new Loop Parameter, **Envelope C** can run in Loop mode (Loop > 0.0%), allowing for polyphonic repeating sequences:

The loop consists of the Decay 1 and 2 segments (Decay 2 has a linear curve in Loop mode) and can apply only for the Sustain phase (Loop <= 100.0%, stopping when a key is released) or for the Sustain and Release phase (Loop > 100.0%). At Loop = 200.0%, the loop will continue endlessly.

The loop is bound to key events. When pressing a key, Envelope C will start normally if the Loop parameter is at zero, otherwise it will start in Loop mode. Similarly, when releasing a key, Envelope C will stop normally if the Loop parameter is below or equal to 100.0%, otherwise it will stop in Loop mode.

The Decay 1/2 times control the rate of the loop.

The Breakpoint/Sustain levels control the amplitude of the loop. For each repetition, the loop amplitude will approach zero, according to the Loop parameter (smaller values: faster decay).

## New: Single Sounds with Dual Effects

*Single Sounds* now provide two Effect chains, allowing for more complex routings similar to *Split/Layer Sounds*. The mix of the two chains can be controlled by a new parameter:

- **Master FX Mix** - crossfading between Effects **I** and **II** - similar to *Part Volumes* in *Split/Layer Sounds*)



The Feedback Mixer *Effects - From I-II* and Output Mixer *To FX I-II* parameters are also available for defining the Effects and Feedback routing for both Effect chains. The routings are indicated in the *Sound Screen* or *Tab*.

## New: Dual Effects/Part Mixing

Two new parameters have been added for more versatile mixing of Parts (or Effects in *Single Sounds*):

- **Master Serial FX**

Usually both Effect chains run in parallel. With this new parameter, the output of one chain can be fed into the input of the other chain, allowing for flexibility in the order of effects and their complexity.

- **Master Part/FX Pan**

Both Effect chains can be panned against each other, more flexibly distributing their output signals in the resulting stereo mix.

## New: two new virtual Ribbons

Ribbon 3, 4 have been added to the Hardware *Sources* allowing for more flexible modulation and hopefully better integrating Macro *Controls* **E** and **F**.

The two sets of Ribbons (1, 2 and 3, 4) are quickly accessible on the Base *Unit* (see below).

## User Interface Enhancements

### Preset Screen [ Panel-Unit ]

The behavior of **Soft Button 1** and **4** has been reworked.



**Bank** and **Direct Ld** now remains consistent with legacy behavior as the primary command (*short button press*), whereas the new features (**I / II** and **To Part**) appear as the secondary command (*long button press*) if available.

### Sound Conversion

**i** With now two Effect chains in a **Single Sound**, a conversion into a **Split** or **Layer Sound** has new rules. In order not to break established behavior, such a conversion is possible in two variants:

with FX I only	both FX
This corresponds with legacy behavior and is useful for a typical <b>Single Sound</b> using only FX I. After the conversion, FX I is duplicated into both <b>Dual Sound</b> Effect chains.	For a <b>Single Sound</b> using both Effect chains, a conversion copying both chains is more useful. Here, the <b>Master FX Mix</b> parameter is also considered and translated into <b>Part Volume</b> parameters. Also, cross Feedback and FX routings are maintained.

A conversion of a **Dual Sound** into a **Single Sound** will copy both Effect chains and reflect **Part Volume** parameters and cross Feedback and FX routings.

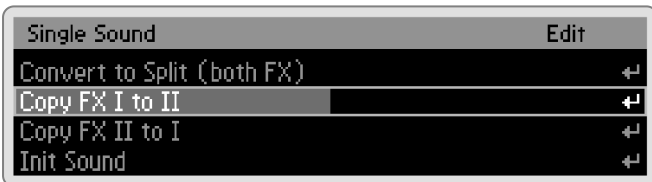
### Sound Initialization [ Panel Unit ]

When holding down the **Default Button** in the **Sound** or **Preset Screen**, the **Initialize Screen** will be visible.



Here, **Soft Buttons 1,2,3** can be used to initialize with a desired **Sound Type**. In **Split or Layer Sounds**, **Soft Button 4** can be used to initialize only the Part/FX currently in focus.

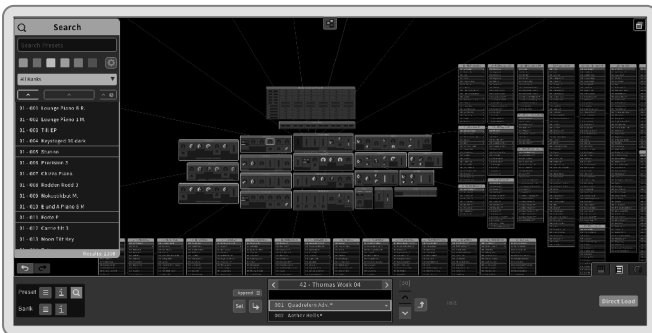
### Copy FX [ Panel Unit ]



When pressing the **Edit Button** in the **Sound Screen**, two new options provide a quick way to copy the Effect chain from one Part into the other.

### Preset Search [ Graphical UI ]

The Preset Search has been reworked from scratch and is now quickly accessible via the top-left **Search Icon**.



The search results are now shown in a separate list and can be sorted and filtered to match specific **Banks** or **Color Tags**.

Presets can be loaded directly from the list. In addition, Presets can be dragged and dropped into new or existing Banks.

### Fine Mode [ Graphical UI ]

In the **Parameter Tab**, a new icon shows if the **Fine Mode** is active (when pressing the Shift key). The Fine Mode can also be enabled permanently by clicking the icon (and will stay enabled as long as the selected Parameter has a Fine Resolution).

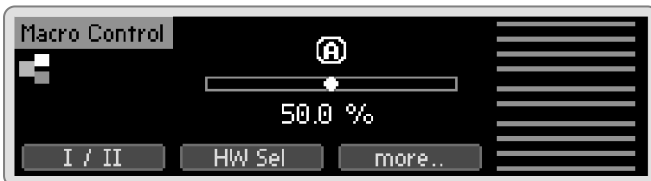
### Scale Parameter Screen [ Panel Unit ]



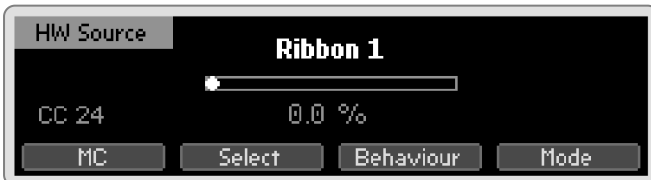
A new Screen has been added to better show Scale parameters. It can be accessed from the Master Parameter Screen.

## Hardware Source and Macro Control Screens [ Panel Unit ]

Routing *Hardware Sources* to *Macro Controls* has been more complex than it needed to be, possibly causing some confusion when trying to modify the *Modulation Matrix*. Also, with the two new *Ribbons*, there are two more amounts to consider. Therefore, setting *Hardware Amounts* has been simplified, deprecating the *Hardware Amount Screen* and bundling all functionality exclusively within the *Macro Control Screen*.



By using **Soft Buttons 2 and 4**, *Hardware Amounts* can be set for the *Macro Control* in focus.



In the *Hardware Source Screen*, all related parameter aspects can be changed.

**i** *MIDI Assignments* are shown on the left (and can be changed via Setup MIDI settings). For *Ribbons*, their *Touch Behavior* can be modified via **Soft Button 4** (previously only available via the *Funct Button* on the *Base Unit*).

## Changed Functionality [ Base Unit ]

When in *Play Mode*, the *Funct Button* will now switch between the two sets of *Ribbons* (1/2 or 3/4) - the selected set is then operable on the two touch strips.

**i** *Ribbon Touch Behavior* can now be changed in the corresponding *Parameter Screen* on the *Panel Unit*.

## Additional Fixes

- Importing older Banks converted some parameters wrongfully  
Affected Parameters were: *Envelope A/B/C Attack Velocity* and *Time Key Tracking*, *Shaper A/B Feedback - Env C* and *Output Mixer Key Pan*.

- **Recorder**  
When closing the *Recorder Tab* in the browser, the playback will stop automatically.
- **Part Selection**  
Selecting a *Part* (or *FX Group* in *Single Sounds*) is now undoable.
- **Envelope A/B/C Attack Curvature**  
The Parameters are now applied for each voice. When the Parameter changes within the Attack segment of a played node, the change will not apply for the active voice.
- **Wrong Envelope C Decay 1/2 times**  
In earlier versions, *Envelope C Decay 1/2 times* were wrongfully influenced by *Envelope B Decay 1/2 Velocity* parameters.
- **Voice Mixing in *Single Sounds* is now consistent**  
All 24 voices are now mixed and unambiguously routed to a specific *FX Group*.

## Known limitations and issues

### Preset Search - drag and drop on touch devices

When dragging one or multiple presets from the search results list and dropping the selection (into an existing bank or onto the background to create a new bank), the selection may not be released correctly and remains stuck on the screen as a visual bug, freezing the *Graphical UI*. After refreshing the page, the UI will be usable again.

### Audible artifacts of modulated Parameters

With the introduction of more modulateable Parameters, some audible artifacts may appear when some parameters are transitioning (the issue is not really new, but modulation increases the chance of noticing the artifacts).



The rendering of these movements is often not computed in audio rate (as a means of not wasting CPU power), leading to the described artifacts. Affected Parameters are:

- **Oscillator A/B:** Phase Modulation - Envelope and Shaper Amounts
- **Shaper A/B:** Drive Envelope Amount and FB - Gate - EnvC.
- **Comb Filter, State Variable Filter:** PM/FM A-B
- **Flanger:** Phase, Envelope
- **Cabinet:** Fold, Asymetry
- **Reverb:** Pre Delay

### **Audible artifacts of Envelope C modulation**

Similar to the phenomenon described above, Envelope C modulation can also lead to artifacts (especially when using very small Decay 1/2 times).

The State Variable Filter Cutoff also seems to produce artifacts when strongly modulated by Envelope C.

### **Feedback/FX flow indicators**

The combination of shown volumes and flow arrows is a little misleading, as a volume is applied at the end of the flow chain, but appears to be at the start.