

1. Overview

In the following table you are getting an overview about the new features of the firmware 1.5:

| Firmware Update 1.5 Delta CEP A Overview | |
|--|--|
| SHIFT LOCK | The [SHIFT]-button can be locked to reach additional parameters more easily. Simply push [SHIFT] to lock the [SHIFT]-function. The LED flashes until the SHIFT function is unlocked again. You can unlock the [SHIFT]-button by pushing it again. |
| MIDI PRG CHANGE | The DELTA CEP A now reacts to program changes. Be careful with program changes. If the unit receives a program change during your sound editing, the changes will get lost. |
| MIXER MOD IN | The Mixer MOD Input now controls the volume and saturation of the Oscillator signal. |
| LFO SYNC INPUT | The LFO SYNC Input now works fine and allows for synchronising the LFO to another LFO or to GATE signals. Remember: Hold [SHIFT] to access the synced note values of the LFO with the rate knob. |
| REVERB FX | We added a Stereo Reverb Algorithm to the Delta CEP A FX engine. This new effect can be added to the already implemented FXs. So you can for example add the Reverb to the Tape Delay or to the Chorus FX. In the section below you'll find a detailed description with the parameter mapping. |
| internal LFO Routing | The LFO can now be assigned to different modulation targets without using any patch cables. That allows for assigning the LFO modulation to multiple targets simultaneously with independent modulation depths for all targets. |
| internal EG routing | The envelope generator can now be assigned to different modulation targets without using any patch cables. Multiple targets can get controlled simultaneously with independent modulation depths. |
| Morphing extended | The already very powerful morphing function benefits from the new routing capabilities. The internal routings can be morphed! Explore a new dimension of dynamic soundscapes. Sure - the Reverb parameters can be morphed as well. |
| Reset all modulation routings | Sometimes you want to reset all internal modulation routings with a simple task. Hold the [EG/GATE]-button in the VCA section and tap onto the [WAVE]-button to set all modulation depths of the internal routings to zero. |

2.) Detailed instructions

2.a) Locking in the shift function

The DELTA CEP A sports more parameters than it has knobs and buttons on it's panel. For that reason we added a [SHIFT]-button for additional parameter access. These parameters can be reached by holding the [SHIFT]-button while turning a knob. The additional functions are labelled with blue letters. In a lot of cases holding shift and turning a knob is a two hands operation. If you prefer to alter a shifted parameter with just one hand, you can lock the SHIFT-function by tapping on it instead of holding it. The [SHIFT]-LED starts to flash as long as the SHIFT function is active. Release the SHIFT-function by pushing the [SHIFT]-button again.

2.b) Reception of MIDI program changes

The DELTA CEP A has 40 preset patches with up to eight snapshots each and 40 ROM patches with up to eight snapshots as well. So far, selecting and loading sound programs was available in patch select mode only. Now, the synthesizer can load them in all modes. MIDI PROGRAM

CHANGES between 0 and 39 are selecting the User patches 1-40 and MIDI PROGRAM CHANGES between 64 and 103 are recalling ROM memories 1-40.

2.c) Mixer Modulation input

The MOD-Input in the mixer section was not set up in former versions. Now, control voltages modulate the Swarm Oscillator Level and saturation balance.

2.d) External Synchronisation of the LFO

The LFO synchronizes now directly to an external trigger signal applied to the SYNC input of the LFO. By holding the [SHIFT]-button and turning the SPEED encoder, the LFO speed is quantized to the resulting note values.

2.e) Reverbration FX

Hold the [PARAPHONIC]-button to get access the reverb parameters. Some of them also involve the [SHIFT]-button:

| Reverb parameters | | | |
|-------------------|--------|-------------|---|
| Button | Button | KNOB | Parameter |
| PARAPHONIC | o | FX-TIME | Reverbration time. |
| PARAPHONIC | o | FX-Feedback | Reverb Damp. Sets how much the reverb feedback gets damped. |
| PARAPHONIC | o | FX DRY/WET | Reverb Dry/Wet control. Adjust the balance between the dry and the reverb signal. |
| PARAPHONIC | SHIFT | FX-Time | Reverb width. |
| PARAPHONIC | SHIFT | FX-Feedback | Reverb feedback. |

2.f) Internal routing of LFO modulation

So far, not so many modulation routings were applicable without cable connections. The new firmware allows for assigning modulation sources to modulation targets directly. All new modulation busses have independent modulation depth controls for each target. Most of them can even get inverted.

Setting up these modulations is straight forward. Just hold the [LFO WAVE]-button and use the parameter knobs itself to setup the modulation depths. The center position of a knob sets the strength to 0. To the left and right, the strength of the modulation is increased while the modulation strength in the left value range is additionally inverted. As usual there is one exception from the rule. The Oscillator waveform modulation and the TLM modulation can't be inverted and can't be used simultaneously, because they are under control of the same knob (Oscillator waveform). To the left and right, the strength of the modulation is increased but the left values control the modulation strength of the TLM modulation and the right the strength of the waveform modulation.

| LFO modulation assignment | | |
|---------------------------|----------|--|
| BUTTON | KNOB | PARAMETER |
| [LFO-WAVE] | OSC WAVE | Between the center and the right position the knob sets the strength of the WAVEFORM modulation. |

| LFO modulation assignment | | |
|---------------------------|-----------|---|
| [LFO-WAVE] | OSC WAVE | Between the center and the left position the knob sets the strength of the TLM modulation. |
| [LFO-WAVE] | OSC PITCH | To the left and right, the strength of the PITCH modulation is increased while the modulation strength in the left value range is additionally inverted. |
| [LFO-WAVE] | OSC LEVEL | To the left and right, the strength of the OSC LEVEL modulation is increased while the modulation strength in the left value range is additionally inverted. Higher values saturate the OSC signal. |
| [LFO-WAVE] | CUTOFF | To the left and right, the strength of the CUTOFF modulation is increased while the modulation strength in the left value range is additionally inverted. |
| [LFO-WAVE] | RESONANCE | To the left and right, the strength of the RESONANCE modulation is increased while the modulation strength in the left value range is additionally inverted. |
| [LFO-WAVE] | VOLUME | To the left and right, the strength of the VOLUME modulation is increased while the modulation strength in the left value range is additionally inverted. |

2.g) Internal Routing of EG modulation

Setting up these modulations is straight forward. Just hold the [EG/GATE]-button in the VCA section and use the parameter knobs itself to setup the modulation depths. The center position of a knob sets the strength to 0. To the left and right, the strength of the modulation is increased while the modulation strength in the left value range is additionally inverted. As usual there is one exception from the rule. The Oscillator waveform modulation and the TLM modulation can't be inverted and can't be used simultaneously, because they are under control of the same knob (Oscillator waveform). To the left and right, the strength of the modulation is increased but the left values control the modulation strength of the TLM modulation and the right the strength of the waveform modulation.

| EG modulation assignment | | |
|--------------------------|-----------|--|
| BUTTON | KNOB | PARAMETER |
| [EG/GATE] | OSC WAVE | Between the center and the right position the knob sets the strength of the WAVEFORM modulation. |
| [EG/GATE] | OSC WAVE | Between the center and the left position the knob sets the strength of the TLM modulation. |
| [EG/GATE] | OSC PITCH | To the left and right, the strength of the EG PITCH modulation is increased while the modulation strength in the left value range is additionally inverted. |
| [EG/GATE] | LFO RATE | To the left and right, the strength of the LFO RATE modulation is increased while the modulation strength in the left value range is additionally inverted. |
| [EG/GATE] | LFO DEPTH | To the left and right, the strength of the LFO DEPTH modulation is increased while the modulation strength in the left value range is additionally inverted. |

2.h) Extended Morphing capabilities

The snapshot morphing covers all 17 new parameters listed above. That means more or less that even the routing of the internal modulation and the reverb parameters can be morphed.

2.i) Reset of all internal modulation routings





Up to 12 modulation assignments can be configured with the new features described above. Resetting them all simultaneously with one simple button combination is a nice shortcut after wild modulation setups.

Simply hold [EG/GATE] and push [LFO-WAVE] to reset all modulation assignments.

3.) Uploading the firmware

The firmware comes as a 10 minute audio file in wave format. We suggest to play the file with the VLC player. The VLC player is available for WINDOWS, Apple MAC OS, and even Linux computers but also for iOS and Android devices.

Connect the output of the computer, mobile phone or tablet with the external input in the MIXER section and play the audio file with the VLC player. As soon as the DELTA CEP A detects a firmware file, you will see an LED animation at the left LEDs.

| Firmware detection | Firmware loading | Transfer error | Firmware update success |
|--|--|---|---|
|  |  |  |  |
| <p>If the unit detected the file but did not receive the audio signal from the beginning, the left LEDs will built up a row of 4 red lit LEDs. Just restart the file from the beginning.</p> | <p>If the firmware reception started at the beginning of the file and when all bytes are received properly, you will get the LED animation above. Each LED represents a memory section of the firmware. The LED at the write position plays a color animation. The LEDs below the current write position are lighting white and LEDs above are lighting purple. This animation will run for around 10 minutes until all LEDs turn white.</p> | <p>The DELTA CEP A detects transmission errors by calculating and comparing checksums. As soon as an error occurs, all LEDs turn red. Run the file from a playback position, where the firmware submission was running fine. The DELTA CEP A can complete the reception from any position. After a little while, the LED animation will change to the normal state again.</p> | <p>When the transfer is completed, the DELTA CEP A copies the received file into the firmware section of the flash memory. This procedure takes around three seconds. All LEDs are turned off while the unit is flashing the firmware. Afterwards all 8 LEDs at the left side turn green indicating, that the firmware update was successful. Now please reboot the synth. The DELTA CEP A is now ready to use!</p> |

