

UDO Super 8

Technical Specifications

Overview

- 16-voice polyphonic, bi-timbral hybrid synthesizer
- Upgradeable to 20 voices with user-installable voice card kit
- True stereo signal path for binaural modulations and spatially enhanced sounds
- Two FPGA-based oscillators featuring classic analog waveforms, capable of cross and ring modulation
- First oscillator with 'super mode' and up to 64 user definable waveforms
- Second oscillator with two sub oscillator options and hard sync
- Analog filters (low-pass and high-pass) and VCAs
- Two LFOs, two envelope generators and an 8x8 modulation matrix per layer
- Arpeggiator and 64-step sequencer per layer
- Two 24-bit stereo effects (chorus and delay) per layer
- Various voice assign options for polyphonic, monophonic and unison modes
- Memory: 512 performances, 512 patches, 64 alternative waveforms, 16 sequences
- MPE support
- 61-note, semi-weighted, velocity-sensitive Fatar keyboard with polyphonic aftertouch
- Folded aluminium and steel construction and high-quality mechanical controls

DDS 1 (Oscillator 1)

- FPGA-based super waveform oscillator core featuring a centroid oscillator and six 'sister' oscillators using sampled waveforms that can be dynamically de-phased in the stereo field to produce wide and thick single-oscillator sounds in one of two 'super modes'.
- Waveshapes: sine, sawtooth, square, triangle, noise and up to 64 alternative waveforms

DDS 2 (Oscillator 2)

- FPGA-based oscillator core running at a very high sample rate with an algorithmic core.

- Waveshapes: sine, sawtooth, square, triangle, variable noise (pink, white, blue), pulse with variable pulse width
- Can be hard-synced to DDS 1
- LFO mode
- Ring modulation mode
- Square wave and Sine wave sub-oscillator modes

Mixer

- Controls the balance between the audio signals from DDS 1 and DDS 2 or DDS 1 and the sub oscillator.
- In shift mode, this parameter becomes a pan control, allowing you to position a layer within the stereo field.

Voltage Controlled Filter

- 4-pole, 24 dB per octave, analog resonant low-pass filter that uses a classic polysynth filter design by Sound Semiconductor (SSI)
- 1-pole, 6 dB per octave, analog high-pass filter, preceding the low-pass filter
- Two overdrive settings
- Selectable keyboard tracking modes
- Modulation by ENV 1 and/or ENV 2, LFO 1 and DDS 2

Voltage Controlled Amplifier

- Analog VCA with selectable velocity sensitivity
- Modulation by ENV 2 or one of two fixed envelopes, LFO 1 and DDS 2

Envelopes

- ENV 1: 6-stage envelope (attack hold, attack, decay hold, decay, sustain, release) featuring inverted and loop modes with selectable key tracking
- ENV 2: 5-stage envelope (attack, decay hold, decay, sustain, release)

LFO 1

- Freely assignable main LFO with low and high-frequency modes
- Can be used as a standard LFO, a third oscillator, as a drone, or for audio rate modulations
- Waveforms: triangle, reverse sawtooth, sample & hold and square as well as any waveform DDS 1 is currently set to
- Features controls for delay and left-right phase offset for binaural modulations
- Free-running, reset and one-shot modes
- Can be synced to the arpeggiator and sequencer or an external clock source

DDS Modulator

- LFO 1 and ENV 1 pitch modulation (DDS 1 and/or DDS 2)
- Selectable 'super modes' and detune spread control for DDS 1
- Wave modulation allows for morphing between two DDS 1 waveforms, modulatable by LFO 1, ENV 1 or manually
- Pulse-width control for DDS 2's pulse waveform, modulatable by LFO 1, ENV 1 or a dedicated PWM LFO
- Cross and ring modulation between DDS 1 and DDS 2

Effects

- 24-bit dual-mode stereo chorus per layer with three settings
- Clock-syncable and modulatable 24-bit stereo delay per layer featuring a delay freeze function that enables you to create sound-on-sound loops while you are performing

Performance Control Section

- Two-axis bender with LFO 2 trigger and dedicated controls for DDS1/2 pitch and VCF modulation
- Variable portamento per layer
- Playable spring-lever keyboard octave selector
- LFO 2 with rate and delay controls, selectable trigger modes, six selectable waveforms (sine, reverse sawtooth, sample & hold, square, sawtooth, sample & glide) and dedicated controls for rate, pitch, VCF and VCA modulation

Expressive Controls

- 61-note, semi-weighted, velocity-sensitive keyboard with polyphonic aftertouch
- MPE support for external MPE controllers

Overarching Controls & Parameters

- Master volume, tempo and lower layer detune controls
- Individual hold modes for each layer
- Selectable keyboard modes for setting up a performance: Single, Dual and Split
- Individual layer select buttons

Modulation Matrix

- Intuitive 8x8 modulation matrix with pre-defined sources and destinations
- Up to 25 more destinations can be modulated using the direct parameter mapping method
- LEDs give clear feedback on mappings and modulation amounts

Voice Assign Modes

- Four selectable voice assign modes including two monophonic and two polyphonic modes
- Eight delectable unison modes including various stacked voice modes and two variants of filter separation per voice, useful for creating vowel-like sounds
- Dynamic voice allocation when unison is enabled in both polyphonic modes
- Binaural option allows for choosing between 10 true stereo ‘super voices’ or 20 non-binaural monaural voices in single layer mode.
- Front panel control to disable Binaural and enter fully true-mono audio output

Arpeggiator & Sequencer

- MIDI-syncable multi-mode arpeggiator with smart hold option
- MIDI-syncable 64-step sequencer with programmable step, slide, accent, rest and sequence length tracks
- Clock parameters feature easy adjustable clock divider settings and swing per layer

Memory & File Management

- 256 performances (each containing 2 patches), 256 patches, 64 alternative waveforms for DDS 1 and 16 sequences
- Files can easily be copied to the internal memory or backed up using the USB port
- Quick firmware updates via USB connection

Connections

- AC power connector for worldwide use with a standard, grounded IEC power cord (90-250 volts, 50-60 Hz)

- USB port
- MIDI In, Out and Thru ports on 5-pin DIN sockets
- Pedal inputs: volume, expression, sustain per layer and delay freeze per layer
- Stereo mix output for summed layer signals (unbalanced 1/4 inch jacks)
- Individual upper and lower layer stereo outputs for individual mixing and processing (unbalanced 1/4 inch jacks)
- Easy to reach headphone output on the front side with both ¼ inh and 3.5mm stereo jack sockets

Size & Weight

- Dimensions: 1047L × 416W × 124H
- Weight: 14.5kg