Töörö

6 voice 4 part digilog synth

Tune me!

A great deal of the sound comes from the voice **analog circuitry.** This needs to be tuned. Holding down the *System switch* and briefly press the *AMP switch* will trigger the **tuning procedure.**

Be careful, it's loud!

The Analog Sound

Töörö is an **highly characterful** 6 voice polysynth, packing the **most exciting and interesting** synthesis capabilities into an almost impossibly small space. It can produce classic, analogue-style tones with saw, square and sine waveforms as well as wicked digital soundscapes from layers of FM modulated and synced wavetables. Per voice, it features a **unique FL A847** optocoupler resonant filter inspired by the MS-10 design and a **digital shaper** with various algorithms. To top it off, the Töörö includes a quality global **multi-fx** with modulated chorus and delay.

Sound design

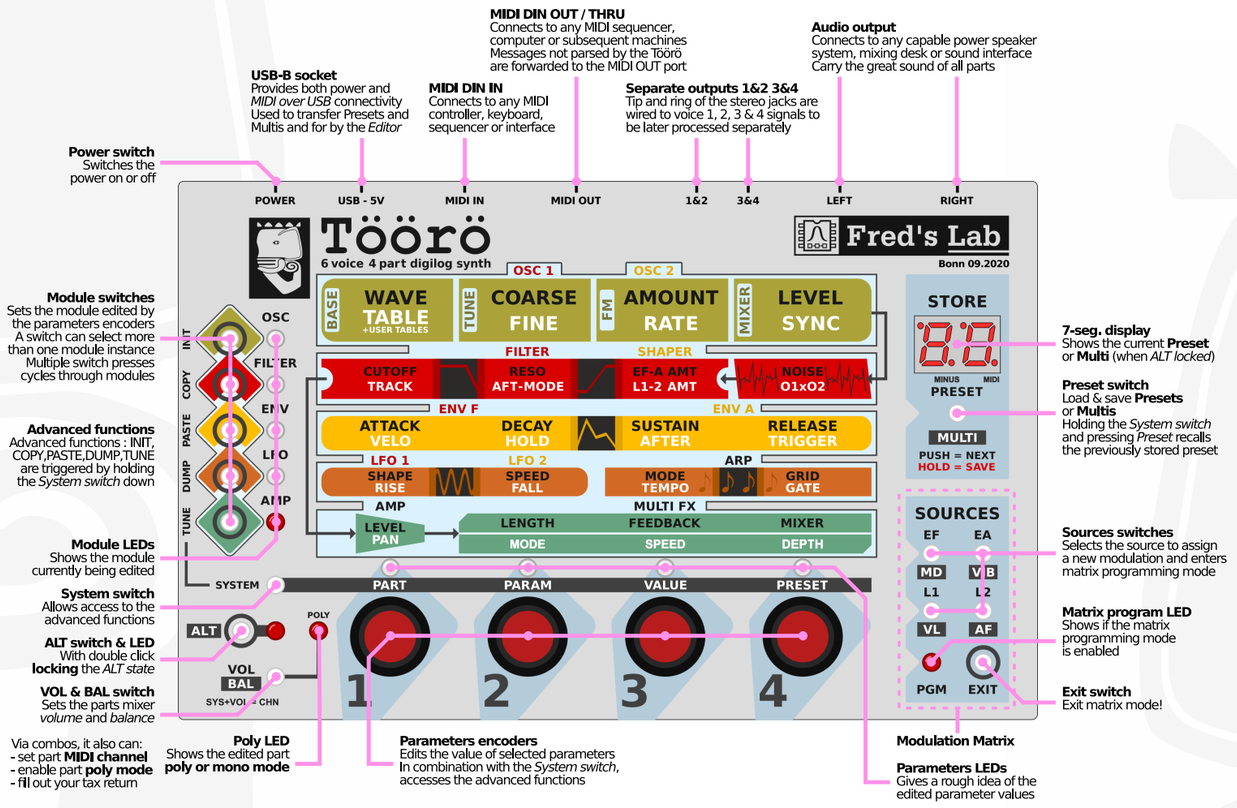
Sounds are created by **adjusting** preset parameters **iteratively**, to sculpt the desired sound or **just by chance,** finding something unexpected and cool!

Wavetable Oscillators
The **2 oscillators** are the tone sources. They play back blended waveforms. Tuning is set relatively to notes pitch using *Coarse* and *Fine* controls and volume is adjusted using the *Level* control. Base timbre is defined with both *Wave* and *Table* controls. Alterations of the harmonics is possible using **FM modulation** (*Rate* & *Amount*) and the **auto-sync** feature with *Sync* control.

Analog Filter / Digital Shaper
Each voice has a dedicated analog 12dB / octave special **FL A847 low-pass** filter and a **digital shaper.** The filter has classic *Cutoff, Resonance* and *Tracking* controls. The shaper, similar ones, with addition of a *Mode* selection. *EF-A AMT* sets the influence of the envs on the filter (ENV F) and shaper (ENV A). *L1-2 AMT* sets the influence of the LFOs on filter (LFO 1) and shaper (LFO 2).

Noise & Ring modulator
A **white noise** source (*Noise*) and a **ring modulator** (*O1xO2*) are available. The ring modulator multiplies and saturates the output signal from the 2 oscillators.

Envelopes & LFOs
There are 2 AHDSRs (*attack / hold / decay / sustain / release*) called **ENV F** (env. filter) and **ENV A** (env. amplifier), and two advanced LFOs called **LFO 1** and **LFO 2.**



Presets Management

The Töörö stores **100 user Presets** and **10 user Multis** that can be recalled and **MIDI dumped** at any time.

Selecting a Preset (2 methods)
For preset operations, the *ALT function* **must be unlocked.**
1-Multiple presses on the *Preset switch* will increment the selected preset number for the edited part.
2-Holding down the *System switch* while turning the forth encoder will increment or decrement the selected preset number from the edited part.

Saving a Preset
To save an edited preset, hold down the *Preset switch* until the display blinks. At the switch release, the edited preset will replace the one previously saved. To save a preset at a different location, use the preset **copy & paste** function.

Initializing a Preset
Hold the *System switch* and briefly press the *OSC switch* to initialize the edited sound parameters to defaults.

Preset Copy & Paste
Presets can be moved from one location to another by using **copy & paste.** *System + FILTER* copies a preset in the temporary buffer. *System + ENV* pastes the preset on the edited part.

MIDI Dumping a Preset
Hold the *System switch* and briefly press the *LFO switch* to dump a sysex of the edited preset over USB MIDI.

Handling Multis
Identical operations can be done on **multis** by holding the *ALT switch* down simultaneously or by **locking** the *ALT.*

Presets & Multis

A Preset consists in all oscillators, filter, shaper, LFOs, envelopes, amplifier, arpeggiator and modulation matrix parameters. The multi-fx does not belong to the preset.

A Multi includes the reference to **4 presets,** the parts mixer (*volume* and *balance*), the **MIDI channels** and multi-fx configurations.

Endless Encoders

The encoders control **all synthesizer parameters.**
Their action depends on the edited module, ***ALT state*** and **Matrix programming mode.**
Edited Preset and Part are selected with *System switch* plus rotation of **encoder 1 or 4.**

MIDI Capabilities

Received MIDI messages
Note On, Note Off, Pitchbend, Modwheel, Channel and Note Aftertouch, Control Change, Program Change, Realtime Clock and Active sensing.

6 voice polyphony
The Töörö can play up to **6 voices** simultaneously. Voices are independant, have their own oscillators, shapers, filters ... and modulation sources. They are shared and reused dynamically by the **4 parts.** Due to the analog circuitry, each voice sounds slightly unique.

4 part multitimbrality
The Töörö has **4 parts** therefore **4 presets** can be used simultaneously. Each part has its own **MIDI channel** (or Omni), **volume and balance** controls. Parts can be layered and forced to **mono mode** to always use the same synthesizer voice.

CC Short List

Oscillator 1
WAVE = CC70
TABLE = CC24
COARSE = CC21
FINE = CC25
LEVEL = CC23
FMAMT = CC22
FMRATE = CC26
SYNC = CC27

Oscillator 2
WAVE = CC77
TABLE = CC34
COARSE = CC31
FINE = CC35
LEVEL = CC33
FMAMT = CC32
FMRATE = CC36
SYNC = CC37

Extra
NOISE = CC78
RING = CC79

Filter & Shaper
CUTOFF = CC74
RESO = CC71
CENTER = CC75
GAIN = CC76

LFO 1 & 2
L1_SHAPE = CC102
L1_SPEED = CC103
L2_SHAPE = CC106
L2_SPEED = CC107

Multi FX
MIXER = CC91
FEEDBACK = CC12

Modulation Matrix

Many sound parameters can be controlled by the **sources** from the **modulation matrix.** A source can only control **one parameter.**

Programming a Modulation
1- Select the desired modulation source (secondary ones using ALT)
2- Töörö enters the *matrix mode* (display shows the selected source)
3- Select the module with the parameter to be modulated
4- Turn the corresponding encoder to set the modulation amount

Replacing a Modulation
Programming a new modulation on a source replace the previous one

Clearing a Modulation
Holding down the *Exit switch* and briefly pressing any source clears the attached modulation.

Exiting the Matrix mode
Wait after programming a modulation or simply press the *Exit switch.*

Sources
EF = Filter envelope
EA = Amplifier envelope
L1 = LFO1 output
L2 = LFO2 output
MD = MIDI mod. wheel
VIB = vibrato (MD x LFO2)
VL = MIDI velocity
AF = MIDI aftertouch

Destinations
OSCx - Wave, Pitch, Sync, Level
FM Amount, FM Rate
Noise, Ring
Filter - Cutoff, Resonance
Shaper - Center, Gain
LFOx - Speed
AMP - Level, Pan

Support

Please address all your feedback and support requests at:
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This product has been carefully designed and tested by **Fred's Lab** and is garanteed to meet all **CE, FCC** and **Canadian** regulations.

Fred's Lab