BLACKPOLE STATION POLYPHONIC SYNTHESIZER

MANUAL

version 1.2.1

device by Turn2on Software

http://turn2on.ru

Introduction

Blackpole Station is a new software polyphonic synthesizer for Reason Propellerhead. Based on 68 waveforms in 3 oscillators (plus 3 addition oscs). It contain 2 base, 1 sub, noise and ring oscillators. Three oscillators contain additional X7-OSC sub-oscillators.

Blackpole include classic analog waveforms (Sine, Triangular, Sawooth, Pulse, Square) and digital waveforms (Leads, Pads, Drones, One-shote samples and cycle-loops). Flexible system of OSCs, Filters, LFOs, Envelopes, Effects and other elements of synthesizer helped us name it Blackpole Station.

MASTER Panel

Pan: Panoram for the whole instrument.

Octave: Octave shift knob for all instrument (-2/-1/0/+1/+2 octaves).

Level: Master output level of device.

Glide: Key relative to previous key.

Glide Depth: Depth of Glide effect.

Glide Smooth: Smooth of Glide effect.

Glide Destination: Destination of Glide effect to Vol/Pan/Tune/Start.

Glide Sync / Inv: Sync and Invert commands of Glide Effect.

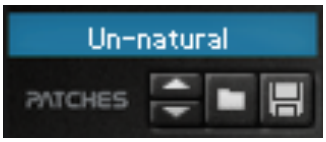
Pitch Bend: This standard wheel is used for pitch notes. Range of this wheel you can set with Pitch Range knob (max to -1/+1 octave).

Mod Wheel: Modulation wheel assigned to Cutoff, Frequency and LFO parameters.

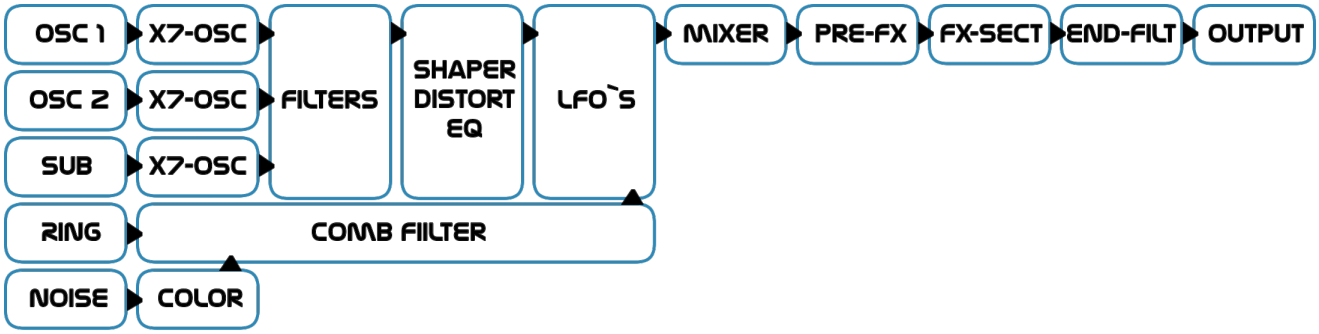
Section contain Modulation range knobs of Frequency, Resonance and LFO elements for ModWheel.

Patch Browser

In this section You can select and open patches of device, save own patches.



Device Logic Scheme



Oscillators

Synthesizer contain 1&2 Osc,
Sub-osc, Ring and Noise.

Osc 1&2 and Sub-osc include
additional X7-Osc.

Osc 1 & 2, select between analog waveforms: sine, triangle, sawooth, pulse plus wavetable groups.

All OSCs has own Tune / Bypass elements.

TUNE knob - tuning sound of current Osc. Range of Tune is -72..0..+72 with octave shifting.

K.TRK - keyboard tracking, Pitch tracking across the keyboard.

Bypass - by default Osc is active. If you press bypass, You disable this Osc.

On the display You can select waveform. At 1 & 2 Oscillators every analog-based waveforms (4 types) has wave-steps (16/8/4/2). Also, Oscillators include wavetable forms. 1 & 2 Oscillators include few groups (Leads, Pads, Drones, Samples).

Sub-oscillator contain 15 waveforms: sine, pulse, square with selection in 2 octaves and 9 wavetables.

Noise oscillator contain color knob , This knob set color of noise.

Ring oscillator contain CombFilter.

Oscillators WAVEFORMS

Oscillator	Waveforms	Wave-Steps / Octaves	Notes
1. OSC1	Sine / Triangular / Sawooth / Pulse classic waveforms	16' / 8' /4' / 2' steps	additional X7-Osc
	10 Leads / 9 Pads / 5 Drones / 12 Samples digital ROM	Self-limit	
2. OSC2	Sine / Triangular / Sawooth / Pulse classic waveforms	16' / 8' /4' / 2' steps	additional X7-Osc
	10 Leads / 9 Pads / 5 Drones / 12 Samples digital ROM	Self-limit	
3. SUB-Osc	Sine / Pulse / Square classic waveforms	- 1 / -2 Octave	additional X7-Osc
	9 Bass waveforms	Self-limit	
4. Ring	Ring waveform		
5. Noise	Noise waveform	Range of Noise color	

X7 OSC

Osc 1 & 2 and Sub-osc contain additional oscillators. This Oscillator module adds up to 7 detuned sawtooth waves with square wave as addition to selected waveform.

Parameter	Description
Oscillators	Number of oscillators (1 to 7)
Tune	Tuning (-36 to +36 semitones)
Detune	Amount of detuning between the oscillators
Mix	Volume of the sawtooth oscillators
Sub	Volume of the square wave sub-oscillators

LFO section

Osc 1&2 and Sub-osc has own LFO 1/2/3.
Its simple LFO with choice of waveform, rate, sync, retrigger and destination.

Parameter	Description
Waveform	Sine, Triangle, Square, Saw, Random, Drift (smooth random)
Rate	Duration of 1 cycle of the LFO waveform.
Depth	Amount of modulation
Dest	Destination parameter to be modulated
Smooth	Smoothing of parameter changes
Sync	Set Rate units to Hz (cycles per second) or beats (quarternotes per cycle).
Retrigger	When Off, all voices will be modulated together in sync. When On, the LFO for each voice starts from the beginning when the note is triggered

Filters

First 3 oscillators (1&2 plus Sub) contain 4-pole lowpass filters (LP24 - 24 dB/oct) with Cutoff, Resonance, Envelope and Smooth knobs.

Filter Param.	Description
Cutoff	Determines the range of high frequencies to be cut
Resonance	It is narrow band of frequencies, near the cutoff level, where the sound is amplified.
Envelope	Generated by the summation of the two contours is a more complex 4-stage contour
Smooth	Smoothing of parameter changes
Invert	Invert for filter parameters

Filter Additions:

First 3 oscillators (1&2 plus Sub) contain addition sections: Shaper, Distortion, Band.

Section	Parameter	Description
Shaper	Shaper Drive	Amount of Waveshaping - technically the drive of the input signal against the curve. More Drive, more waveshaping/
	Shaper Bypass	distortion.
Dist	Distortion Drive	Level of Transistor Distortion
	Distortion Mix	Mix Level of Distortion
BAND	Band Freq	Center frequency of the EQ band.
	Band Width	Slope of the EQ left and right from the center frequency
	Band Gain	Attenuation/Boost.
	Band Bypass	Activity of Band EQ

Section	Parameter	Description
Spread	Spread Level	Widering signal
	Spread On/Off	Activity of Spread.
HAAS	HAAS On/Off	Activity of HAAS
PAN	PAN L/R	Pan of oscillator

Comb Filter

Comb filter can be used with Osc1/Osc2/Sub-Osc and Ring-Osc. All controllers of CombFilter placed near Ring Osc.

Parameter	Description
Tune	Delay time, displayed as resonant frequency in Hz.
Keytrack	Tuning should track playback pitch.
Feedback	Feedback from delay output to input. At high settings the delay becomes a tuned resonator.
Damping	High cut applied to feedback to make it less harsh
Stiffness	Detunes resonant frequencies away from a harmonic series, similar to stiffness in a piano or guitar string.
Mix	Level of the delay output.
Bypass	Activity of Comb Filter

CombFilter Links section contain activity buttons of Osc1/Osc2/Sub-Osc and Ring-Osc.
This section also include CombFilter modulation from LFO 1/2/3 to elements of CombFilter (Tune/Mix/Feed/Damp)

Spaces

After all OSCs, signal routed to SPACES. There You can choose one from 30 creative FX-spaces.

Pre-FX / End-Filter

Pre-FX / End-Filter sections contain selectable type of filters (6 types), On/Off button, Cutoff and Resonance knobs.

Pre-FX filter provide signal from Mixer to FX-section.
End-Filter provide signal from FX-Section to Synthesizer Level output.

Type of filter	Description	Cutoff	Resonance
LP6	1-pole lowpass filter	•	
LP12	2-pole lowpass filter	•	•
LP24	4-pole lowpass filter	•	•
HP6	1-pole highpass filter	•	
HP12	2-pole highpass filter	•	•
BP6	2-pole bandpass filter	•	•

As addition, Pre-FX section contain Long Verb and Verb impulse-elements with On/Off button.

Envelopes

Synthesizer include AHDSR Amp and Filter Envelopes.

Envelope Type	Parameter	Description
Amp/Filt	Attack	Attack time
	Hold	Hold time at maximum level
	Decay	Decay time
	Sustain	Sustain level
	Release	Release time
	Velocity	**Velocity Amp for use with keys**

MIXER

This section contain levels of 1&2 Osc, Sub-osc, Ring and Noise Oscillators.
Sum of signals from OSCs routing to Output Level of Synthesizer.
Noise Section contain color knob and On/Off button.

FX section

This section include 6 FX. Every FX can be used or disabled with knob On/Off.

FX elements: Phaser, Limiter, Distortion, Chorus, Delay and Reverb.

Limiter

Parameter	Description
Release	Recovery time
Mode	Soft knee, or hard knee with clipping to prevent overshoots

This very basic limiter is intended as a low-CPU safety limiter to keep levels in check

Chorus

Parameter	Description
Rate	Modulation rate
Depth	Depth of delay (pitch) modulation
Voices	Number of chorus voices
Mix	Mix of Dry/Wet

Reverb

Parameter	Description
Time	Length of reverb tail
Delay	Initial delay before reverb
Damping	Progressive loss of high frequencies in reverb tail
Mix	Mix of Dry/Wet

This is an algorithmic reverb emulating a digital reverb unit

Delay

Parameter	Description
Time	
Feedback	
Damping	Progressive loss of high frequencies
Mix	Mix of Dry/Wet
Ratio	Negative values reduce the left channel delay, positive values reduce the right channel delay
Mode	Sets which channel(s) feedback is taken from
Sync	Sets Time parameter to seconds or quarternote beats

Distortion

Parameter	Description
Drive	
Mode	Transistor (stereo hard clipping) or Tube (mono soft clipping with DC bias)
Low Cut	High pass filter before distortion
Hi Cut	Low pass filter after distortion

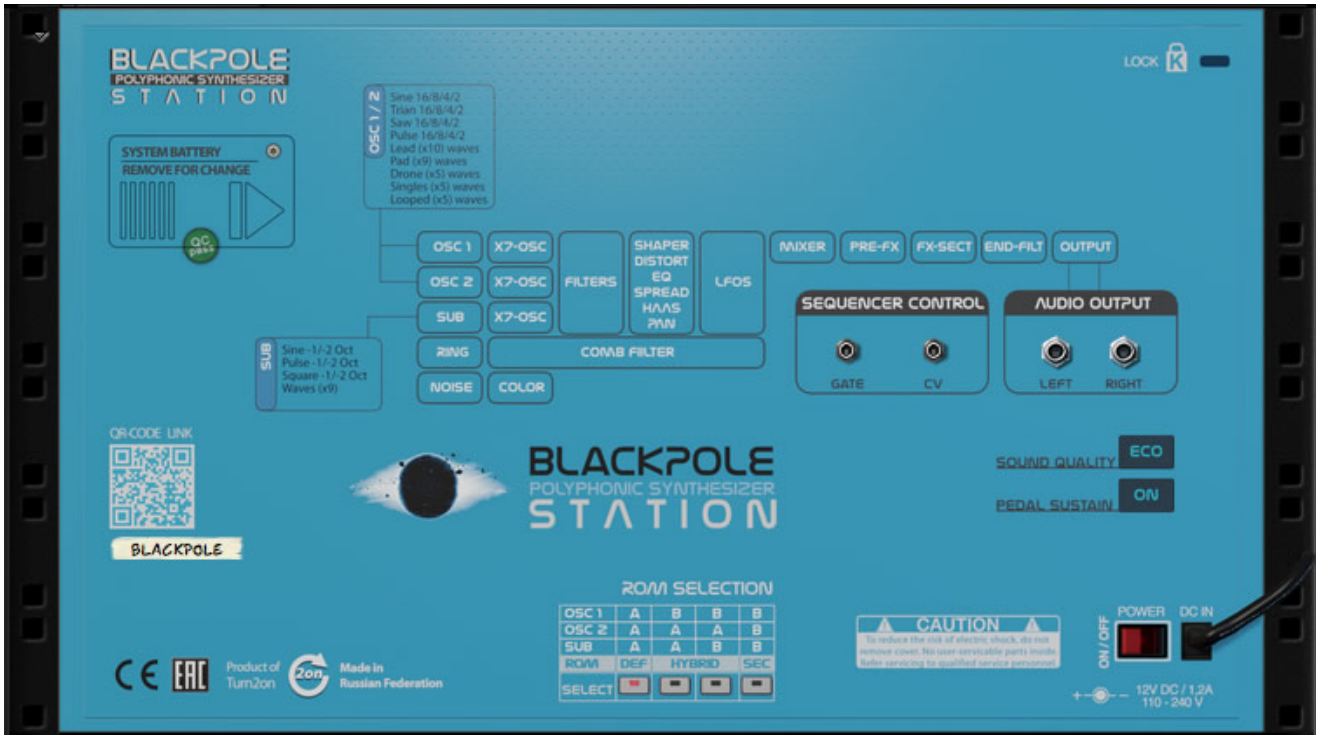
Transistor distortion or tube overdrive to create harmonic distortion

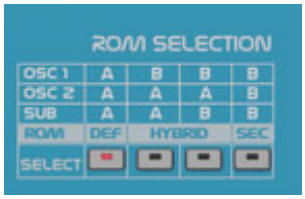
Phaser

Parameter	Description
Rate	Modulation rate
Depth	Filter frequency modulation
Feed	Feedback level
Mix	Mix level

BACKSIDE (rear panel)

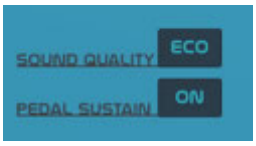
There You can find Device Logic Scheme, Audio outputs (L/R), CV inputs (Gate, Note), selection of Sound Quality and Pedal Sustain mode.





ROM selection:

1. Default ROM (from early versions)
2. Second ROM (new soundforms)
3. Hybrid BAA (Osc1 - new soundforms, Osc2/Sub - soundforms from Default ROM)
4. Hybrid BAB (Osc1/Sub - new soundforms, Osc2 - soundforms from Default ROM)



Sound Quality: Eco (better for CPU) / MID / HIGH
Pedal Sustain: mode of sustain

BLACKPOLE STATION POLYPHONIC SYNTHESIZER

Re Rack Extension

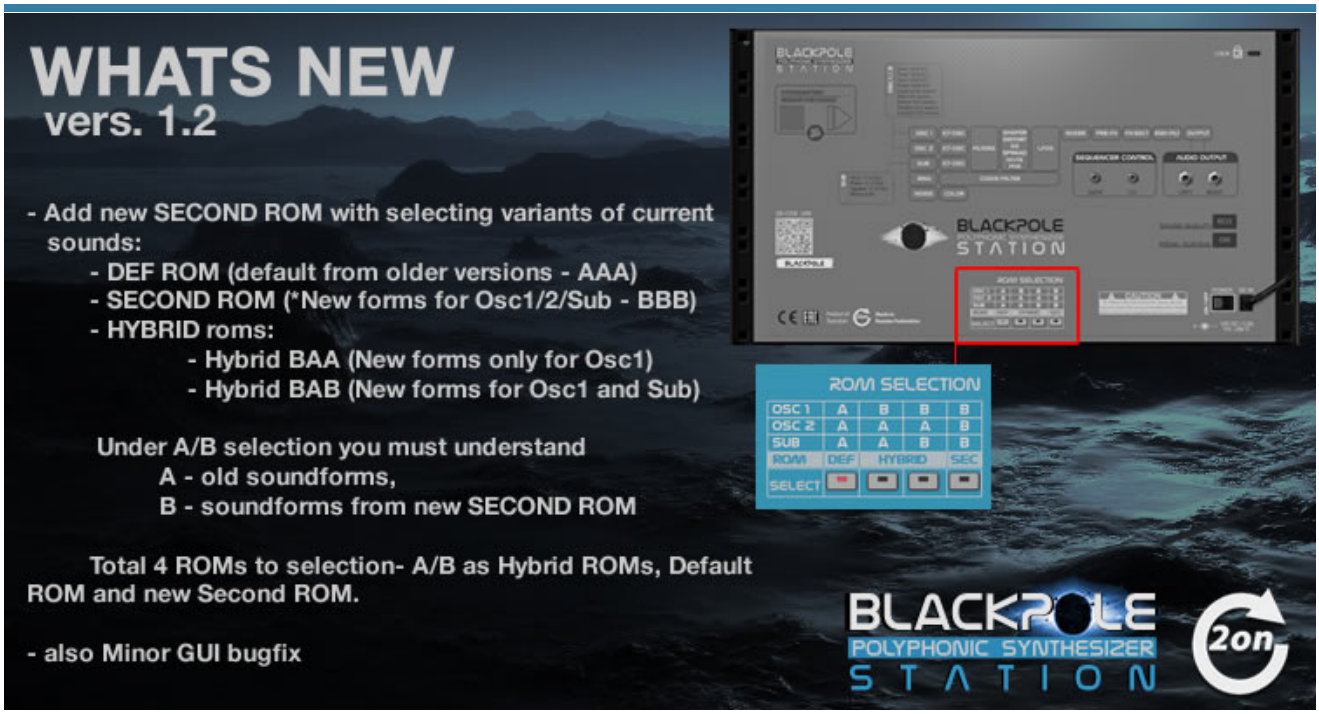
AVAILABLE IN THE propellerhead shop

BLACKPOLE STATION

Polyponic Waveform-Based Synthesizer

So, why we called our Synthesizer - "Blackpole"? Its speciality box with deep and warm sounds. Deeper than Black Hole, purer than ice of North Pole..

TURN2ON



Whats new in 1.2.1 Update:

Combinator patches bugfix

Whats new in 1.2.0 Update:

- Add 2nd ROM and 2 Hybrid ROM variations
- GUI bugfix

https://shop.propellerheads.se/product/blackpole-station-polyphonic-synthesizer/

Turn2on - software Rack Extension build company

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