PHONIC POLY SYNTH

INTRODUCION

3 voice polyphonic synthesizer. Pressing one of the BIG_BUTTONs will trigger one of 3 sounds and doing the same while holding down a SHIFT_BUTTON will trigger another 3 sounds. All these 6 sounds compose one preset. By pressing PAGE_BUTTON you go through 4 different PAGES of settings.

For each sound you can adjust oscillator settings with color shaping options (OSC->FILTER subtractive structure or MOD->CARR FM structure)(red page), LFO (green page) and ADSR(blue page).

By adjusting "characters" (white page) osc char (TOP_KNOB), lfo char (LEFT_KNOB) and adsr char (RIGHT_KNOB), you can go thru all possible routing setting as well as different wavetables and filter types.

FREEZING

Changing to different sound or page always deactivates = freezes the knobs to avoid overwriting the original values. To unfreeze the knob you have to hit the original value with the knob. This is indicated by short flash of white on the RGB led (or black while the RGB led is white already). With the knobs you are always editing the last triggered sound.

OSCILLATOR

When OSC_CHAR is in the lower half you have subtractive synthesis with 4 oscillator wavetables (sine, saw, distorted square and noise) and 4 resonant filter types (lowpass, highpass, bandpass, notch). In the upper half of OSC_CHAR you have 2-operator FM modulation synthesis changing the mentioned wavetables for carrier and modulation oscillator.
On the OSC (red) page you adjust frequency of carrier oscillator(TOP_KNOB), filter cutoff / modulation oscillator frequency(LEFT_KNOB) and filter resonance / modulation amount (RIGHT_KNOB).

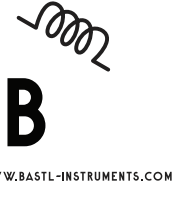
LFO

On LFO (green) page you adjust rate - the speed of lfo (TOP_KNOB), amount of modulation and resolution of the modulation / smoothness.
LFO_CHAR adjusts shape(up-down, up, down, up and down, random, random continuous) and destination of LFO (everything from osc page).

ENVELOPE

On ADSR (blue) page you can adjust the envelopes attack (TOP_KNOB), sustain (LEFT_KNOB) and release (RIGHT_KNOB). When sustain in 0 than RIGHT_KNOB works as decay. ADSR_CHAR adjusts amount and additional destinations of the envelope (osc page) as well as different decays when sustain is not set to 0.

For MIDI implementation and more details see www.bastl-instruments.com



Trinity is hackable digital synthesizer compatible to Arduino IDE and Mozzi Library for Arduino. To hack your instruments connect FTDi USB connector breakout to the "hack-port".

NOTE: the words written in big letters and underscore such as SHIFT_BUTTON refer to their names in the source code.

TRINITY

POWER UP

There are $$$ options of powering
$) Battery: plug the 9V battery to the battery clip and put the slide switch to BATT position
$$) Adapter: plug in the power adapter 9V DC positive polarity (+ in the centre of the connector) and put the slide switch to PLUG position
$$$) Via another instrument: side pins are used to share power, audio and communication among several instruments with the same pinout (Bastl Instruments, NovaDrone). Connect two or more devices, power one of the instruments form an adaptor and put the slide switch to PLUG position.

Note: to avoid charging 9V batteries inside the instrument the instruments are not able to share the power from built-in battery connector to the chain connectors. To pass this limitation you can your 9V battery to the power jack connector adaptor cable and connect via the power plug.
However the chips can take a bit of energy from the communication line so as far as there is no MIDI data on the data line some non-powered instruments might appear turned ON but are not fully functional.

MIDI

Input MIDI channel can be set up manually by holding down one of the BIG BUTTONS while turning the device ON. This sets the input channel to 1,2 or 3 (being indicated by blinking one of the LEDs 3 times after intro animation). By holding down the SHIFT BUTTON and one of the BIG BUTTONS the input channels sets to 10,11 or 12 (being indicated by blinking one of the LEDs 3 times while the other 2 LEDs are ON).

For more information about your instrument and about hacking it visit www.bastl-insruments.com