

FM MONO SYNTH

INTRODUCTION

Mono FM is experimental monophonic FM synthesizer equipped with 1 oscillator, 3 modulators and LFO. Pressing **BIG_BUTTONs** flips the switches indicated by the **leds** and shows combination under which the sound is stored. Knobs edit the settings of this sound. By pressing **PAGE_BUTTON** you go through 5 different **PAGES** of settings. The page is indicated by the color of the **RGB led**. **BLACK** is for carrier oscillator, **RED**, **GREEN**, **BLUE** for modulating oscillators and **WHITE** for LFO.

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.

CARRIER

The carrier oscillator settings (black page) are pitch of the **CARR** (**TOP_KNOB**), overall amount of modulation (**LEFT_KNOB**) and different algorithms of oscillators modulating each other (**RIGHT_KNOB**).

MODULATORS

On the modulators pages (R,G,B) you are adjusting amount of modulation of individual modulators (**LEFT_KNOB**), harmonic multiple of **CARR** frequency (**RIGHT_KNOB**) and harmonic detune with range of one octave (**TOP_KNOB**). By pressing the **WAVETABLE_BUTTON** you change wavetable of each oscillator (sine, saw, triangle and noise).

LFO

LFO (white page) is used to modulate parameters of the oscillators at lower rate. You can adjust the rate of the modulation (**TOP_KNOB**), amount of

modulation (**LEFT_KNOB**) and destination (**RIGHT_KNOB**) which says which parameter you are controlling. The **RIGHT_KNOB** also selects different resolutions / smoothness of the modulation.

By pressing the **SHAPE_BUTTON** you select different shapes of modulation.

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



B



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.

POWER UP **TRINITY**

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-instruments.com

