technical details

- 14HP
- 35mm deep
- PTC fuse and diode protected 16 pin power connector
- requires +5V on bus board
- current consumption: +12V: <5mA, -12V <5mA, +5V: <35mA

Connecting module to your system

Before connecting the ribbon cable to this module disconnect your system from power !

❗

Double check the polarity of the ribbon cable and that it is not shifted in any direction. the red cable should match the -12V rail both on the module and on the bus board !

please make sure of the following

- you have a standard pinout eurorack bus board
- you have +5, +12 and -12 power rails on that bus board
- the power rails are not overloaded by current

Although we put protection circuits in the device, we do not take any responsibility for damages caused by wrong power supply connection.
After you connected everything, double-checked it and closed your system, so no power lines can be touched by hand, turn on your system and test the module.

instruction

❶

CV Trinity has 6 independent channels for CV generation. The generated signals are in the 0-5 volts range. Each of them can be set to AUTOMATION (red), LFO (green) or ADSR (blue).

❷

Use the SELECT buttons to select a channel to edit. The layout of the 3 big buttons corresponds to the output connector layout. The 3 big buttons select the column and the small button select which row you are editing. The selected channel is indicated by the LEDs.

❸

The SELECT OUT connector outputs a copy of the CV from the channel that is selected for editing. The current signal is indicated by an LED.

❹

Pressing the mode button changes between the modes. The mode of the selected channel is indicated by the color of the RGB LED. In each mode the knobs have different functions which are indicated by the front panel print.

❺

Each channel also has a CV/gate/clock INPUT. The function of these inputs depends on the selected mode and its settings.

❻

Clk IN is used by AUTOMATION or LFO to synchronize to a master clock.

❼

Clk OUT outputs a clock signal from the built-in clock generator. The clock generator frequency can be adjusted by holding the FN button and turning the top knob. Clk OUT is normalized to Clock IN.

❽

The FN button lets you to access additional settings for each mode. While you hold the FN button the SELECT buttons show the setting information bits. Please refer to the mode description for details.

❾

The record button is used during automation to record knob movement. If you press the record button while holding the FN button CV Trinity saves all settings for all channels into a preset.

❿

Six jumpers on the back side of the CV Trinity select whether the CV input should react to 0-5V (jumper inserted) or 0-10V (jumper not inserted). This can be set for each channel individually.

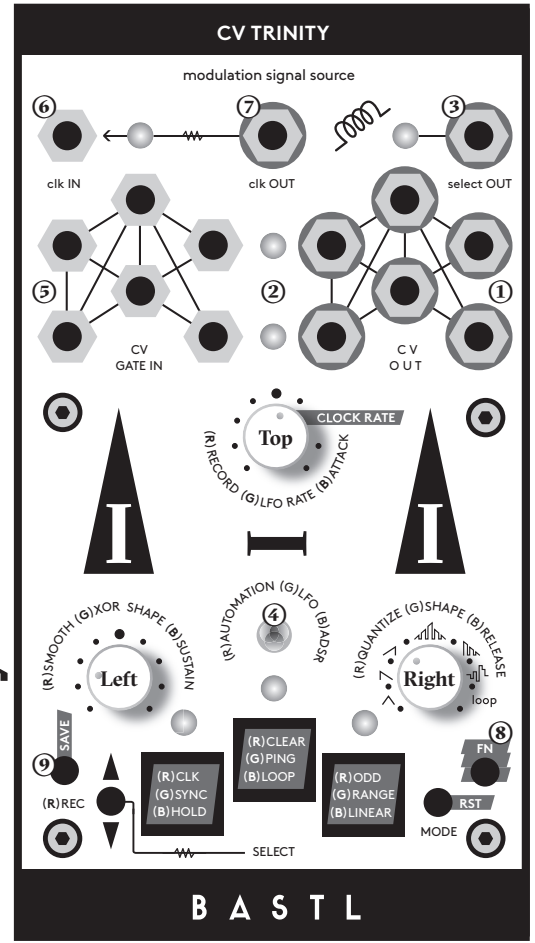
⓫

Two jumpers in between the programming headers assure communication between the circuit boards. Both of them have to be inserted (vertical position) for proper operation. In case you would like to hack the Trinity or upgrade the source code you can use the standard FTDi USB adaptor pin headers for programming the interface (top) board and the CV (bottom) board. The "disconnect for programming" jumpers have to be unplugged for proper upload procedure.

⓬

Expansion pin headers are here for connecting expansion modules. please follow the side marking on the appropriate expansion boards.

CV Trinity HEX MODULATION SIGNAL SUPERHERO



AUTOMATION *Red*

Automation is a 32 step knob recorder with adjustable amount of linear interpolation. Hold the record button and use the TOP knob to enter voltages into the memory. Pulse signal on Clock input advances to next step. The LEFT knob adjusts the amount of smoothing. When it is fully to the left, the signal is stepped and when fully right it is linearly interpolated. The RIGHT knob adjusts how many of 32 steps are used.
Holding the FN button and pressing the big SELECT buttons gives you access to more settings. The leftmost big button sets whether the automation is clocked by the master clock (light ON) or if it is expecting a clock on the selected channel input (light OFF). The middle big button clears the whole memory to 0 volts. The rightmost big button selects whether the number of steps set by the RIGHT knob allows any number including odd numbers or if it filters them out and lets you set the number of steps only to 1,2,4,8,16 or 32 steps.

LFO *Green*

LFO is an advanced low frequency oscillator with waveshaper and many extra features including a loopable clocked random generator with smoothing.
In the default settings, the TOP knob sets the LFO rate. In synchronisation mode it sets the divider of the clock input to which the LFO will synchronise and in pingable mode it sets the relative phase shift of the ping input clock.
The RIGHT knob selects the waveform/type of the LFO. In order from leftmost to rightmost the waveforms are: triangle, saw, ramp, flopping triangle, flopping saw, stepped random, looped stepped random. The stepped random mode is either clocked by the LFO rate, or by the divider of the clock input, when in synchronisation mode. The looped stepped random mode takes the last 32 steps of the stepped random pattern and loops them.

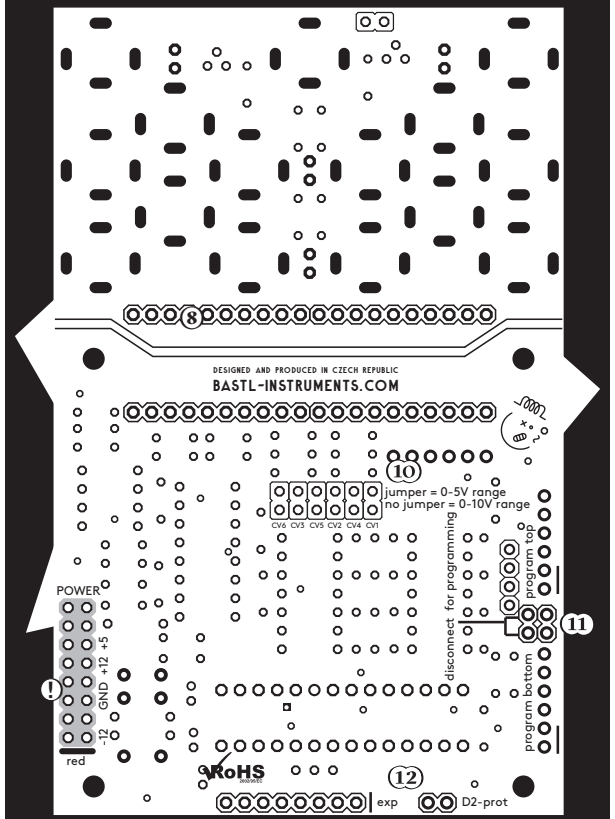
The LEFT knob sets waveshaping or smoothing for the stepped random wave. For ramp waveform it acts as a bit reducer and for the stepped random wave it works as smoothing. For all other waveforms it acts as XOR modulation. This means that the waveform is XORed with number from 0-255 set by this knob. XORing with 255 inverts the waveform.

Holding the FN button and pressing the big SELECT buttons gives you access to the following settings.
The leftmost big button sets whether the LFO is free running (light OFF) or synchronised to the main CLK IN. When synchronised, the TOP knob sets the divider specifying how many clock pulses one LFO period should last. The leftmost channels synchronize with no phase offset to the clock, the middle channels synchronize with a 90°phase shift and the leftmost channels synchronize with a 180°phase shift. This can be used for various quadrature effects.
The middle big button sets whether the CV input is affecting the LFO rate proportionally with the voltage on that input (light OFF) or if it works in pingable mode. This means that if you send at least two pulses to this input, the LFO sets its rate to the time in between these pulses. When this setting is activated the synchronisation to the main clock is deactivated and the TOP knob affects the phase shift relative to the clock on CV input.
The rightmost big button selects the range of the LFO. It can be slow with periods in the range of 2 min to 200ms (light off) of fast: 2 s -10 ms. This applies only to the free running LFO (both middle and leftmost lights are turned OFF).

ADSR *Blue*

ADSR uses the CV input as GATE input for triggering the envelope. The TOP knob sets attack (1ms—10s). The LEFT knob sets sustain or hold time, when in hold mode (1ms—10s). The RIGHT knob sets both decay and release time (1ms—10s).

PCB



Take it Carefully

Holding the FN button and pressing the big SELECT buttons gives you access to more settings. The leftmost big button can turn on HOLD mode (light ON). In hold mode, the envelope is in attack - hold - release mode. The envelope resets the full cycle anytime there is rising edge from a clock pulse at the GATE input.
The middle big button sets whether the envelope is in LOOP mode (light ON). In the this mode, the GATE input resets the envelope cycle.
The rightmost big button selects whether the envelope is linear (light ON) or exponential (light OFF).

features

- 6 independent modulation channels
- CV input and CV output per channel
- select OUT outputs current selected modulation channel
- indication LED for select OUT
- each channel can be either AUTOMATION, LFO or ADSR
- AUTOMATION: clocked 32 step memory with adjustable linear interpolation, number of steps and possibility of independent clocking
- LFO: rate, XOR waveshape, shape (ramp, inverted ramp, triangle, flopping ramp, flopping triangle, stepped random with smoothing and looping), synchronisation with clock
- ADSR: attack, sustain , decay set to same value as release, linear or exponential, looping mode, attack-hold-release mode
- jumpers to select 0—5V or 0—10V range for each CV input
- clock input
- clock generator output normalized to clock input