



Signal processing module VG-line 12BITCRUSHER

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USER GUIDE

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About

The **12BITCRUSHER** by **VG-line** is a **EURORACK** standard module, designed for installation and operation as a part of modular synthesizers and sound processing systems. The heart of the device is a Soviet 12-bit DAC/ADC chip used in measuring, military and special-purpose equipment. The device also contains Soviet NOS components. Unique technological solutions applied in the development of this module allow you to make changes in the initial signal, retaining its original features, in contrast to similar modern devices which apply mathematical algorithms for processing.

Thus, all the “fat” from the input signal will remain after processing!

This module allows you to achieve the sound effect of various Lo-Fi samplers, get an imitation of digital corruption of the input audio signal, and supplement the signal with additional harmonics and formants. The degree of digital corruption can be adjusted by the controls located on the front panel or external CV signals.

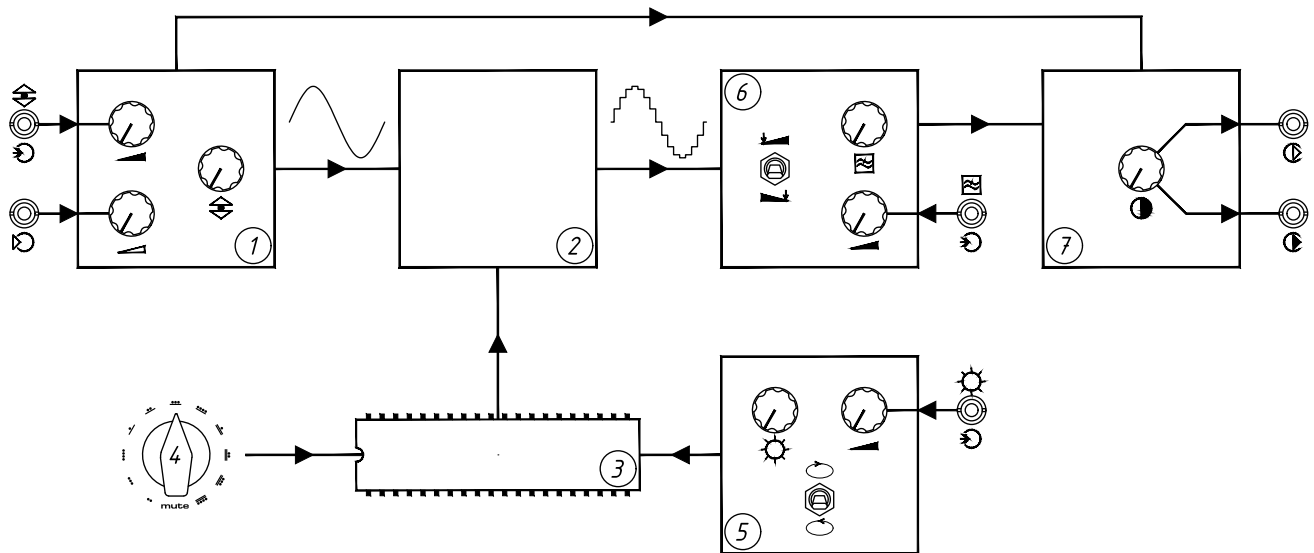
VG-line 12BITCRUSHER received the best signal processing device award at **SYNTHPOSIUM 2017** exhibition.

User manual

The module consists of the following main blocks:

Input amplifier with adjustable sensitivity and input signal offset; Signal processing unit on a specialized chip with the ability to select bit depth, change the waveform and adjust sampling frequency; Mixer for the input signal and the processed one; Filter; The control unit for the parameters of the offset, sampling rate and cutoff frequency with external CV inputs and the ability to adjust the amplitude of the control signals.

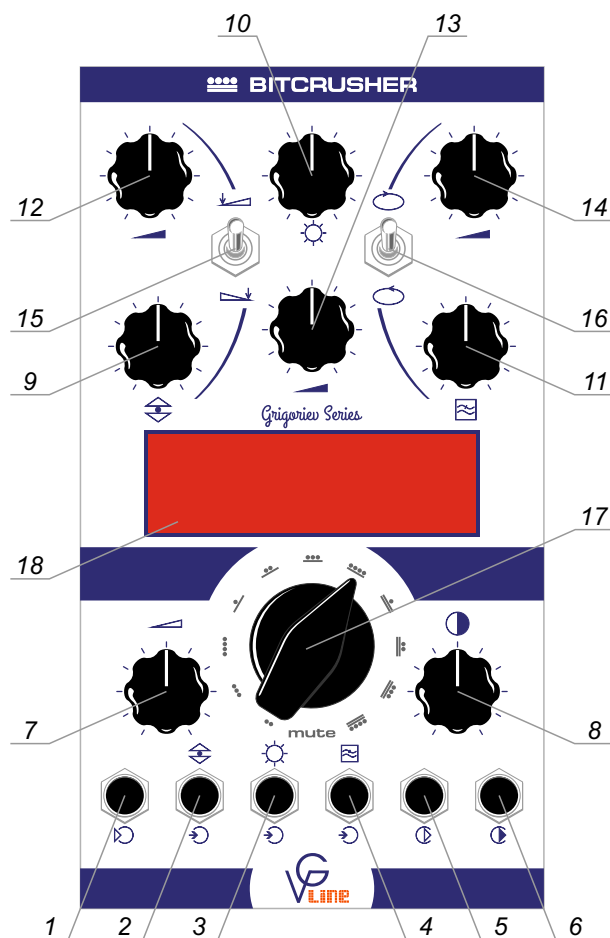
Device unit diagram



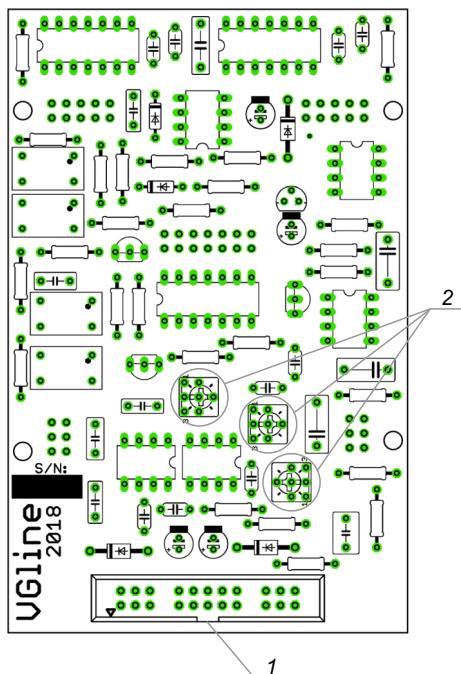
1. Input amplifier with level and offset controls
2. Sample and hold
3. BIG SOVIET CHIP
4. Bit depth selector
5. Voltage controlled sampling frequency generator
6. Voltage controlled low-pass filter
7. Mixer and output amplifier

In the centre of the module there is a porthole through which you can observe the heart of the module - **BIG SOVIET CHIP** , that “starts beating” when an external control signal is supplied from any CV source.

Front panel nomenclature:



- 🔊 1. Audio input jack
- 🔌 2. External CV offset control jack
- 🔌 3. External CV sampling frequency control jack
- 🔌 4. External CV cutoff frequency control jack
- 🔊 5. Dry audio output jack
- 🔊 6. Mix audio output jack
- 🔊 7. Audio input level control
- 🔊 8. Mix control
- 🔌 9. Offset control
- 🔌 10. Sampling frequency control
- 🔌 11. Cutoff frequency control
- 🔊 12. Offset external CV level control
- 🔊 13. Sampling frequency external CV level control
- 🔊 14. Cutoff frequency external CV level control
- 🔌 15. Treble cutoff switch
- 🔌 16. Signal corruption switch
- 17. DAC/ADC bit depth selector (2 to 12 bits)
- 18. Porthole



1. Vgext signal and power jack, compatible with standard 10 pin DOEPFER IDC-10 power cable
2. Factory-configured knobs that don't need to be twisted

The expanded Vgext power jack is used to connect to the signal bus in VG-line devices (i.e. GUI2LAR) using a special cable which transmits all the signals from the front panel as well as power. When installed in standard EURORACK cases with 10 or 16 pin connectors, the connection is made with a 10 pin connector in the center of the extended connector

Quick start guide




ATTENTION!

Before installing the device in the case, connect the power cable as shown in the figure above.

Switching the corruptions on 16 can lead to a sharp increase of the amplitude of the output signal and self-oscillation. Be careful.

Connect any audio signal to input 1 and confirm clean signal at output 6 with the mixer control 8 at the leftmost position. You should hear the signal you supply without any corruptions.

Set the bit selection switch 17 to the position , the CV level controls of signals 12, 13 and 14 to the leftmost position, the offset control 9 to the rightmost position, the sampling frequency control 10 and the filter cutoff frequency control 11 to the rightmost position.

Set the high-pass filter switch 15 to the bottom and corruption switch 16 to the middle position.

Turn the mixer control 8 to the rightmost position, check the presence of the processed signal.

After that, adjust the corruption level to your taste by turning the filter 11, sampling 10, offset 9 frequencies, and changing the position of the discharge selection switch 17, high-pass cutoff 15, and corruptions 16 and add a pure signal to the proceeded signal by rotating the mixer control 8 counterclockwise if necessary.

If you need to control the offset parameters, sampling or cutoff frequency from external sources (LFO, EG, etc.), apply the CV to the corresponding input 2 for offset, 3 for the sampling frequency and 4 for the filter cutoff frequency and adjust a control signal level with the controls 12 for offset, 13 for the sampling frequency and 14 for the cutoff frequency of the filter to the level you need, and the 9, 10 and 11 controls will work as limiters.

If there is a control voltage at any of the CV inputs 2, 3 or 4, the porthole window 18 will be illuminated from the inside.