MG Monolith

BASTL MICROGRANNY POST SOUND GRANULAR SAMPLER

MG²

G SAMPLE RATE
B GRAIN SIZE

G CRUSH
B SHIFT SPEED

G ATTACK
B START

INPUT

OUTPUT

G RELEASE
B END

MIC

GREEN / BLUE

RECORD
SAVE

PRESET

UP
COPY

FN

DOWN
PASTE

HOLD
INSTANT
LOOP

TUNED   LEGATO   REPEAT   SYNC   RANDOM SHIFT   RNDMZR

BASTL INSTRUMENTS

MICROGRANNY MONOLITH

Introduction

Microgranny Monolith (further only Microgranny) is a monophonic granular sampler with MIDI input and 8-bit audio input. It has 6 BIG BUTTONS, each of which plays a sample from the microSD card. You can adjust several parameters of the sample. In the manual, we will refer to the sample, with all its edited parameters, as SOUND.

MG Monolith Features

- monophonic mono sampler
- microSD card (storing + recording samples, storing presets)
- 6 sounds, with full adjustments, storable in a preset
- 60 presets in 10 banks (6 presets per bank), stored as .txt files on a microSD card
- wav sample playback from microSD card (mono, 22050 Hz, 8 or 16 bit, two letter file name)
- 8-bit 22050 Hz wav recording via line input or onboard microphone
- hold button
- sample rate (tuned or free run)
- bitcrush
- start, end position with repeat, instant loop
- granular settings: grain size and shift speed (positive or negative)
- amplitude envelope attack and release
- MIDI Input – responds to note, cc, and clock (synchronize loop and grains)
- copy & paste sound
- input & output volume knob
- power source switch – 9V plug / 9V battery
- hackable – arduino based

Power up

There are 2 ways to power the Microgranny.
1) Battery: Plug the 9V battery to the battery clip and put the slide switch in the BATT position
2) Adapter: Plug in the power adapter with 9V DC center positive polarity (**+** in the center of the connector) and put the slide switch in the PLUG position.

Playback and HOLD

Press the BIG BUTTONS in order to hear the sounds. The last pressed BIG BUTTON will play the sound. Microgranny is a monophonic sampler which means it can play only one sample at a time.

By pressing the HOLD button, the HOLD mode is activated (indicated by the HOLD LED). Now you don't have to hold down the BIG BUTTONS in order to keep them playing. By pressing the BIG BUTTON which is already playing, it will start playing the sound from the beginning. To stop playback press the HOLD button again.

Sample selection

Play one of the 6 SOUNDS. By pressing the UP or DOWN button, you can select samples that are stored on the SD card. The name of the sample is indicated on the display. See the Appendix for a typography explanation. By holding the UP or DOWN button for longer than 2 seconds, the first letter of the sample begins to change, which allows faster browsing of the directory.

Note: When browsing the directory, the Microgranny always searches whether the sample with the following name is actually on the SD card. If you have only a few samples with

different first letters, it might take the Microgranny a few seconds to find the next sample, as browsing goes first through numbers 0-9, then alphabetically in ascending order (A-Z). In this way, "banks" can be designed on the microSD using letters and numbers. Searching is indicated by "SRCH" showing on the display. In this case, it is recommended to use the long press to move to the sample of your choice.

TIP: See further COPY & PASTE functions to make setting up presets easier.

Knobs

The 4 knobs on the left adjust the parameters of the sound. The actual functions of the knobs are dependent on the PAGE, which is indicated by the color of the RGB LED. By pressing the PAGE button, you change the PAGE from BLUE to GREEN. The parameter names are printed on the board with a B or G to indicate the BLUE or GREEN page.

When changing the PAGE or sounds settings, the knobs get deactivated, so the original values are not instantly overwritten by a different position of the knobs. Whether a knob is active or not is indicated by the LEDs next to each knob.

In order to activate the knob, the knob has to reach the original value. Turn the knob and once it matches the original value, the LED will light up and you will be able to edit the value.

The 2 knobs above the display adjust the INPUT and OUTPUT volume.

FN button

The FN button allows access to more functions and parameters of the sound. Hold down the FN button and

press the BIG BUTTONS to change the parameters of the last played sound: TUNED, LEGATO, REPEAT, SYNC, and RANDOM SHIFT. The state of these parameters is indicated by the LEDs while the FN button is pressed.

Hit the last BIG BUTTON to play a DEMO!

COPY & PASTE

Pressing the UP or DOWN button in combination with the FN button enables the COPY and PASTE functions. The last played sound is copied by the COPY function FN+UP into a buffer. Press another BIG BUTTON (or even the same) and then FN+DOWN and the sound from the buffer will be pasted with all parameters to the last pressed BIG BUTTON.

INSTANT LOOP

When a sound is playing, you can press the HOLD button in combination with the FN button to call the INSTANT LOOP function. The first call of the INSTANT LOOP marks the start of a loop, the second press marks the end and the sound loops in between these points (indicated by "LOOP" showing on the display). The third press deactivates the INSTANT LOOP.

SAVE

By pressing the RECORD button in combination with the FN button you SAVE the current PRESET (all SOUNDS and their edited parameters).

Parameters of the SOUND

KNOBS

SAMPLE RATE (G) - is the pitch of the played sound. It can operate in 2 different modes, depending on the sound's TUNED parameter. Initially, the TUNED parameter is turned on, which means that the SAMPLE RATE is changed in

semitones in a range from -36 to +5, where 0 is the original pitch. When TUNED is turned off, the SAMPLE RATE can be adjusted in a fine resolution from -360 to +50, which is 10 times higher and corresponds to the tuning (when TUNED is turned on -12 is the same pitch as -120 when turned off).

GRAIN SIZE (B) - sets the size of the GRAIN loop. When GRAIN SIZE is set to 0 there is no granular effect applied to the sound, and therefore the SHIFT SPEED function doesn't affect the sound either.

CRUSH (G) - is the distortion effect applied to the sound.

SHIFT SPEED (B) - sets the speed at which the GRAIN loop travels through the sample. It ranges from -127 to 128, where 0 means the GRAIN loop is static. The negative numbers mean that the GRAIN loop travels backwards (from the end position to the start position).

ATTACK (G) - sets the attack parameter of the volume envelope. This means how long it takes for the sound to fade in from silence to the maximum volume after the playback of the sound was started.

START (B) - marks the playback starting position. The sample gets chopped into 1024 points and START selects the starting point. When START is set to 0 it means the sample is played from the beginning.

RELEASE (G) - sets the release parameter of the volume envelope. This means how long it takes for the sound to fade out to silence after the playback of the sound was stopped (e.g pressing the button).

END (B) - marks the playback ending position of the 1024 points of the file. When END is set to maximum it means the whole sample is played.

Note: Ending position cannot be set lower than the starting position.

BIG BUTTONS 1-6

TUNED (1) - see SAMPLE RATE to see how the parameter influences the sound. When playing the Microgranny by sending MIDI notes, the TUNED parameter selects whether the notes transpose the sound or play individual grains. See the MIDI chapter for more information.

LEGATO (2) - if turned ON, the MIDI Notes sent to the Microgranny are transposing the pitch without resetting the start position and envelope, while more than one MIDI Note is held. Note: LEGATO can be turned ON only when TUNED is turned ON.

REPEAT (3) - if turned ON, the playback position jumps back to the START position when the playback reaches the END playback position. When turned off the playback ends when reaching the END position. If SHIFT SPEED is negative the start and end positions are switched.

SYNC (4) - when turned ON, the GRAIN SIZE and END parameters automatically synchronize to the MIDI clock.

RANDOM SHIFT (5) - the shifting of the GRAIN loop in the sample can be set to random, meaning it randomly decides whether the SHIFT SPEED goes forward or backward each time the GRAIN loop is played to the end.

RNDMZR (6) - randomizes the settings of all SOUND parameters.

Presets and Banks

One preset consists of 6 sounds and all their parameters. To load a different preset, hold down the PAGE/PRESET button and press one of the 6 BIG BUTTONS to load the

corresponding preset. The display for example shows PR.23, meaning you loaded preset number 3 (second number) from bank 2 (first number). To save a preset, hold down the FN button and press the RECORD button.

In one bank, there are 6 presets. To change banks, hold down the PAGE/PRESET button and press UP or DOWN. There are 10 banks (0-9).

All of the presets are stored on the SD card in the form of simple TXT files, named P23.TXT for example. You can rename and rearrange your presets on your computer, however the parameters can be edited only on Microgranny.

TIP: When you have been tweaking your sound and you want to quickly come back to the initial settings, just reload the preset.

Recording

Microgranny can record 8-bit samples with a sample rate of 22050 Hz. It uses the onboard microphone or line input. When the line input is connected, the microphone is disabled. Use a mono cable for line input recording.

Press the RECORD button to enter the record mode (the RGB LED turns RED). In the record mode, the dots on the display indicate the level of the incoming signal. Use the INPUT volume knob to adjust the volume. Pressing the HOLD button will activate or deactivate the pre-listen function – the sound coming through from the input to the output, while in record mode.

After entering the record mode, the display asks you to select ("SLCT") a position where you want to record. Now press one of the 6 BIG BUTTONS. Microgranny checks if there is a file in this slot and deletes it and prepares for recording. Then the display says ("REDY") and the RECORD LED starts blinking to indicate that you should hit

the RECORD button to start recording. Microgranny will turn off the display (to minimize noise) and will start recording (indicated by only the RECORD LED and the LED of the current slot). To stop recording, hit the RECORD button again. The recorded sound is now stored and assigned to the BIG BUTTON. You can exit the record mode by pressing the PAGE button.

For each BIG BUTTON in each preset, there is one file reserved for recording. Only the wave files starting with a number, for example, "2D.WAV", can be deleted and overwritten. The first character of the name of the sample refers to the bank, the second character refers to the BIG BUTTON and preset (in preset P21, the reserved files for recording are 20-25.WAV, in P22, the reserved files are 26-2B.WAV, and in P23, the files are 2C-2H.WAV, etc.) **Note:** Recording automatically saves presets.

ATTENTION: Do not turn OFF the Microgranny while it is recording! It might result in corrupted files or a broken file system on the microSD card. If you are having problems of this kind, it is advised to format the microSD card again. See [below](#) for more information.

MIDI

MIDI Channel

Microgranny has MIDI INPUT. It reads MIDI messages on the specified MIDI channel. To set the MIDI channel, hold down one of the BIG BUTTONS while turning on the Microgranny, to set the input channel to 1-6. By following the same procedure while the FN button is pressed, you set the input channel to 7-12. The input channel is indicated on the display each time you turn on the Microgranny, for example, "CH 2" for MIDI input channel 2.

MIDI notes

Microgranny reads Note messages and reacts to Velocity. The first 6 notes of the lowest MIDI octave correspond to the 6 buttons on the Microgranny.

If the TUNED parameter is ON, the last played sound gets spread and its pitch transposed on the keyboard in the range of 3 and a half octaves. The middle C note is the original sample pitch (C4 – note no. 60). The transposed mode is active from 3 octaves below this note (C1 - note no. 24) to 6 semitones above this note (F4 - note no. 65).

If the TUNED parameter is turned OFF, the range of 5 octaves (with C4 in the middle) represents the whole sample, and pressing different keys/notes sets the starting position of the playback, i.e. playing different parts of the sample. When used with granular settings, this feature can be used to play individual grains.

The BIG BUTTON 1 button is selected with the lowest C and it goes up to F for BIG BUTTON 6 (one semitone at a time). All higher notes play the last selected BIG BUTTON/SOUND.

You can also press the BIG BUTTON you want to have active on the MG itself, and all incoming MIDI notes will play the corresponding SOUND.

Whether incoming MIDI notes will play different pitches or different grains (different parts of the sample) depends on the setting of the TUNED parameter.

TIP: In case you happen to have some hanging MIDI notes, turning the HOLD function ON and OFF will reset the MIDI note buffer.

MIDI CC

Microgranny reacts to MIDI CC messages to set the parameters of the sound.

The CC mapping is as follows:
102 = SAMPLE RATE
103 = CRUSH
104 = ATTACK
105 = RELEASE
106 = GRAIN SIZE
107 = GRAIN SPEED
108 = START
109 = END
0 = preset change.

The modulation wheel sets the GRAIN SIZE and Sustain pedal is also supported.

MIDI Synchronization

Microgranny can synchronize the GRAIN SIZE and END position (and looping in general) to MIDI Clock. When it receives the clock message, it turns automatically to slave mode. You can turn off the synchronization of individual sounds by turning off the SYNC parameter.

When in sync mode, the settings GRAIN SIZE or END are indicated on the display as multiple or division of one beat. This means that if the GRAIN SIZE is set to 1 the GRAIN is one beat long (24 MIDI clocks).

Preparing the SD Card and your own samples

Of course, you can use your own sounds and you can use any microSD card you want. Before you use the card, it is advised to format it with the official formatter to make it work faster. The original SD formatter can be found here together with instructions: www.sdcard.org/downloads

You can use any microSD card reader that shows the card on your computer as an external drive. The samples for Microgranny have to be wav files, Mono, 16 or 8-bit, and with a sample rate of 22050 Hz. To convert your samples into such a format you can use the free software Audacity (www.audacityteam.org/download) or any other software that allows these exporting options.
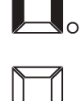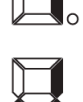
In Audacity, open your file, when it is Stereo, use Track > Stereo Track to Mono. Then change the Project Rate (bottom left corner) to 22050 and then go to File > Export.

In the Format drop-down menu choose "Wave (Microsoft) signed 16 bit PCM" and use a name with two letters only, use A–Z (only upper cases) and 0–9 letters. Check the "factory" SD card if you are not sure how to name your samples.

Samples starting with a number (e.g. 2B.WAV) are reserved for recording and can be deleted and overwritten from within the Microgranny.

Copy the files to the root directory on the SD card and everything should be ready to be played by the Microgranny.

Appendix - 7 segment typography

A	M	Y
B	N	Z
C	O	Ø
D	P	1
E	Q	2
F	R	3
G	S	4
H	T	5
I	U	6
J	V	7
K	W	8
L	X	9

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