SPILL

Manual

Introduction

Thank you for purchasing SPILL.

Spill is a multi effect that is overloaded with features. It is based on the daisy seed platform which ensures high audio quality and durability. Spill is a stereo effect, but the channel assignment allows it to be used as 2 individual mono effects. 6 mostly buffer-based effects are available. Internal modulators, mod matrix per effect, randomizers, sequencer, logic section and presets provide a feature set that should have you covered in all situations.

This manual will help you understand.

Installation

Make sure to connect the Eurorack power cable so that the red line of the power cable points towards the “OKInstruments writing on the pcb.

Use plastic washers or knurlies, in order to not damage the nice look of your module.

On the back of the module you find the Daisy Seed microcontroller. Only connect it to USB in order to update firmware. With only USB connected, the module will be powered, can be flashed, but screen and sound will not work.

Never plug / unplug the microcontroller while powered on.
Avoid connecting the module under power.

Connecting the module the wrong way around should not do any harm, but should be avoided.

Effect Page

Call the Effect page with F + Effect-trigger button.

SPILL contains 6 effects. Each effect carries an individual color.
This color will be shown by the effect button and by the encoders.
The effect parameters are visualized with a 2-part bar. The bigger part is the actual effect parameter. The smaller bar is the effects parameter plus the modulation applied to it and therefore shows the final parameter value.

Effects can be triggered from multiple sources:

1. Trigger buttons.
2. Trigger inputs.
3. Logic.
4. Randomizer.
5. Sequencer.

Encoder 1 click: Enter / leave modulation page.
Encoder 2 click: Enter / leave Random page.
Encoder 3 click: Enter / leave Logic page.
Encoder 4 click: Enter / leave Sequencer page.
Encoder 5 click: Enter / leave Channel Assign page.

Stutter

The Stutter loops a certain part of the recorded audio buffer.
In contrast to the Slicer, the buffer will always play from the beginning.

Sz: Size of the loop, synced to the Bpm.
Spd: Playback speed.
Dir: Playback direction: Fwd, Bwd, PingPong.
Scr: Scratch. A sine is generated from the read marker and modulates playback speed.
Sz: Grainsize.
Mix: Dry/Wet mix.

Grains

Here we have 8 grains which can freeze or timestretch the audio.

Dst: Distance between Grains, in other words, Grain birth rate.
Spd: Grain playback speed.
P: Grain Pitch.
Mix: Dry/Wet mix.

Slicer

The slicer loops a certain part of the recorded audio buffer. The buffer is recorded after the module has powered up, or when the Slicer trigger button is pressed while the Slicer page is visible.

Sz: Size of the buffer range that will be played.
Pos: Position within the buffer.
Dir: Playback direction from backward to forward.
Bit: Bit Crusher.
Mix: Dry/Wet mix.

Filter

This is an oversampled 2-pole multimode filter with integrated phaser.

Cut: Cutoff Frequency.
Res: Resonance.
Typ: Filter Type: LP, BP, HP, Comb.
Phs: Phaser Frequency.
Mix: Dry/Wet mix.

Delay

This delay effect has a multimode filter sitting in the feedback path. Note that the delay works in send effect fashion, so there is no dry/wet control, but a level control which sets the level at which the delay tail is added to the final audio. This makes sure that the delay tail can survive after the effect trigger has finished.

Sz: Delay Size, synced to Bpm.
Fb: Feedback.
Flt: Feedback filter frequency.
Typ: Feedback filter type: LP, BP, HP.
Lvl: Delay Level, added to dry signal.

Reverb

This reverb effect has a lowpass and a high pass filter sitting in the feedback path. Note that the reverb works in send effect fashion, so there is no dry/wet control, but a level control which sets the level at which the reverb tail is added to the final audio. This makes sure that the reverb tail can survive after the effect trigger has finished.

Sz: Room Size.
Fb: Room Feedback.
LP: Lowpass Filter frequency.

HP: High Pass Filter frequency.
Lvl: Reverb Level added to dry signal.

Modulation

Enter and leave the Modulation page with a click on encoder 1 while you are on an FX page.

Turn the first encoder to enter the Modulation page for another effect.

The Modulation page shows the color of the modulated effect.

We have 3 modulation buses per effect.

Modulations which are sent to the same target will be added.

Encoder 1 turn: Select another effect.
Encoder 2 turn: Select a modulation **source** for the selected bus.
Encoder 2 click: Reset the **source** menu to None for the selected bus.
Encoder 3 turn: Select a modulation **target** for the selected bus.
Encoder 3 click: Reset the **target** menu to None for the selected bus.
Encoder 4 turn: Set the modulation **amount**.
Encoder 4 click: Reset the modulation **amount** to zero.
Encoder 5 turn: Select the modulation bus (1-3).
Encoder 5 long click: Reset all modulation buses.

Modulation Sources

CV 1-4: Use the CV inputs and attenuators to send modulation.
Envelope Follower: Turns the Audio input into a smooth curve.
LFO: Currently only a sine LFO.
ADSR: Envelope: Can be triggered by any FX trigger or clock input.
CV Recorder: Record from any CV or audio input.
Random: Random value, triggered by the clock input, divided by the Rand Div setting.

Random

Enter and leave the Random page with a click on encoder 2 while you are on an FX page.

With the Randomizer engine, you can randomly activate effects, change effect parameters, assign modulators and change modulation amounts.

Encoder 1 turn: Select another effect.
Encoder 1 click: Activate the effect trigger randomizer.

Encoder 2 turn: Set the threshold for the effect trigger randomizer. Lower value: the effect will be triggered more often, higher value: the effect will be triggered less often.
Encoder 3 turn: Set the random amount for parameter randomization.
Encoder 4 click: Activate randomization for the modulation matrix. This will randomize mod source, target and amount for the first modulation bus.
Encoder 5 turn: Select the parameter for which you want to activate or deactivate randomization.
Encoder 5 click: Activate or deactivate modulation for the selected parameter.

By default the Mix parameter is not randomized which proved more practical.

Logic

Enter and leave the Logic page with a click on encoder 3 while you are on an FX page.

Logic includes trigger operations based on logic gates and trigger conditions based on counting triggers. Only in coming triggers are used, so chained logic (triggers resulting from logic do not count as logic source) is not possible.

Encoder 1 turn: Change the effect.
Encoder 2 turn: Change the working mode in the Logic menu:
Off: Nothing will happen.
OR: The effect will be activated when the selected effect or the effect given in Source is active.
OR: The effect will be activated when the selected effect or the effect given in Source is active.
XOR: The effect will be active when either this effect or the effect given in Source is active, but not when both effects are active.
AND: The effect will be active when this effect and the effect given in Source are active.
NAND: The effect will be active when this effect and the effect given in Source are not active.
NOT: The effect will be active when the effect given in Source is not active.
2nd: The effect will be active each second time it is triggered.
3rd: The effect will be active each third time it is triggered.
4th: The effect will be active each fourth time it is triggered.

Encoder 3 turn: This changes the effect given in the Source menu.
It will show “Count” when 2nd, 3rd or 4th are selected in the Logic menu.

Encoder 4 turn: here you can hold a.trigger for a number of clock pulses.

Sequencer

Enter and leave the sequencer page with a click on encoder 4 while you are on an FX page.

The sequencer allows you to trigger effects in a sequenced manner without the need for external triggers. It runs along the external clock which must be applied to the clock input. You have one sequencer per effect, and each sequencer can have its own clock divider and playback settings. The sequencer can also record external triggers, and it can be randomized.

Encoder 1 turn: Select Effect.
Encoder 2 turn: Select clock divisor.
Encoder 3 turn: Select Step.
Encoder 3 click: Change step state (on/off).
Encoder 4 turn: Select playback direction:
>>|: Forward.
<<|: Backward.
<|>: Ping Pong.
Rnd: Random.

Encoder 5 turn: Sequence length (last step).
Encoder 5 click: Record from Trig input.
Encoder 5 long click: Randomize sequence.
Encoder 5 longer click: Initialize sequence
Encoder 5 very long click: Initialize all sequencers.
F Button: Restart the sequencer.

Channel Assign

Enter and leave the sequencer page with a click on encoder 4 while you are on an FX page.

The channel assign page shows all effects and allows you to send them to the left, right or stereo channel.

This allows you to use Spill as 2 two effects devices effectively.

Encoder 1 turn: Select effect.
Encoder 2 turn: Select mode:
Left: The effect will only work on the left channel.
Right: The effect will only work on the right channel.
Stereo: The effect will work on both channels.

Encoder 5 long click (on effect page): Calls and initializes the Channel assignments to Stereo.

Modulators

Click F + Encoder P1 - P4 to enter the modulator engines.
You can assign the modulators to effect parameters in the modulation page which is entered with a click on Encoder P1 on any effects page.

Envelope Follower

Will generate a modulation curve from the incoming audio signal.
Att: Slows down the rising part of the curve.
Hld: Adds a hold phase after the attack has finished.
Rel: Slows down the falling part of the curve,
Amp: Amplifies the curve to adapt to your needs.

LFO

Sine wave where Rate is the frequency control.

Encoder 3 turn: Set LFO Rate.

ADSR Envelope

Attack, Decay, Sustain and Release form the classical envelope shape.
Select a Trigger signal with Encoder 5.

CV Recorder

Click F + P4 to enter the CV Recorder.
It records a loop from the selected CV input, Audio input or internal modulator.
Max time is about 40 seconds.

Encoder 1 click: Click and hold to record the loop. After Recording has finished, the loop starts playing.
Encoder 2 turn: Change the size of the recorded loop.
Encoder 3 turn: Change the playback speed.
Encoder 4 turn: Select from which source should be recorded.

Presets

Click F + P5, then turn Encoder 5 right to enter the presets.
All parameters except the CV attenuators and recorded CV loop will be saved to the preset.
Upon startup, the last loaded preset will be loaded.
Preset names can be edited or randomized.

Encoder 1 turn: Select a preset (10 presets are available).
Encoder 1 click: Load the selected preset.
Encoder 2 click: Open the save screen.
Encoder 3 click: Initializes all parameters for a fresh start.
Encoder 3 very long click: Resets all presets to Factory.
Encoder 4 click: Randomizes all parameters for funny results.
Encoder 5 turn: Enters the Master page (right) or the settings page (left).

Save Screen

The save screen lets you change the preset name and save the preset.
10 presets are available.

Encoder 1 turn: Selects the Preset number you will save to.
Encoder 1 click: Discards the save process and closes the save screen.
Encoder 2 turn: Selects a position in the preset name.
Encoder 3 click: Generates a random preset name.
Encoder 4 turn: Selects a letter for the selected position in the preset name. The first letter of a new word will automatically be capitalized.
Encoder 5 click: Saves the preset.

Factory Presets

Reset to factory presets with a very long click on Encoder 3.

1) Init (normal settings).
2) Randomized (endless generation of ambient textures).
3) Rand Slow (slower randomization)
4) Sequenced (Sequencers trigger all effects).
5) Modulated (Each effect has a full modulation assignment)
6) Toggle (Effect triggers will be in toggle mode).
7) External CV
8) bla

9) bla
10) bla

Settings

Enter the Preset page with F + Encoder 5, then turn Encoder 5 left.

Bpm / Tap F

Spill heavily depends on a Bpm which is in sync with your music, because buffer sizes, delay times and the LFO should do musical things.

There are different ways to enter the tempo:
The Bpm can be tapped with the F button when the settings page is open.

This will be overwritten when a clock signal arrives, which will then be used to detect the Bpm. In order to cope with unstable clocks, only the first 4 clock triggers will be used to detect the Bpm. If the incoming clock changes frequency, the Bpm will be counted again.

The Bpm will be saved in the presets.

Encoder 1 turn: Manual Bpm input, will not be overridden by clock.
Encoder 1 click: Detect Bpm from clock again.

Rnd Clk /

This is a clock divider for the Randomizer. Divide the clock if you want a slower randomizer, generating signals less often. The default value is 4, where each 4th clock pulse the randomizer will fire.

Encoder 2 turn: Set the divisor from 1 to 16.

FX Active

Trigger: Effects will be active as long as their respective trigger input is HIGH, or as long as the fx button is pressed.

Toggle: A trigger will toggle the effect on, the next trigger will toggle the effect off. This also helps if you want an effect to be active all the time: Just activate the effect manually and make sure it receives no other triggers.

Encoder 3 turn: Switch between Trigger and Toggle mode.

Wet Mode

Mix: Spill will work like any other effect, where the Dry/Wet controls set the mix between dry and effect signal.

Wet Only: With this setting, Spill will only put out audio when at least one effect is active. There will be no Dry/Wet mix any more, the Dry/Wet controls are now level controls.

This makes sure that no dry signal will ever be heard, so Spill can run as a send effect, where the dry signal is routed to another mixer channel by the user, while Spill runs on its own mixer channel, producing only effect signals.

Encoder 4 turn: Switch between Mix and Wet Only mode.

Master

Enter the Master page with F + Encoder 5.

On the Master page you can set the input level, output level, master dry/wet mix and apply a CV to the Master dry/wet.

Encoder 1 turn: Set the input level.
Encoder 2 turn: Set the output level.
Encoder 3 turn: Set the master mix.
Encoder 3 click: Toggle between the last master mix setting and zero.
Encoder 4 turn: Select the modulation source for master mix.

Screensaver

In order to avoid burning effects on the Oled screen, after a certain amount of time the Screensaver kicks in. Three different screensavers make things more interesting.
End the Screensaver by using any control.

Tips

When using the Randomizer, make sure to set the Range carefully or exclude certain parameters.
Randomizing Filter Cutoff can mute the sound with a too low cutoff and low pass filter.

In order for the randomizer and sequencer to work, always feed a clock to the clock input.

All effects but the filter and the LFO depend on Bpm. Set the Bpm manually, tap the Bpm or apply a clock in order for the effects to be in sync with your music.

The input jacks can take any voltage between -12V and 12V.

Special thanks to:
Johannes Eising, Milo Weigel, Philipp Roller, Gabriel Mulzer.

Send bug reports, feature requests and blackmail to info@ok-instruments.com.