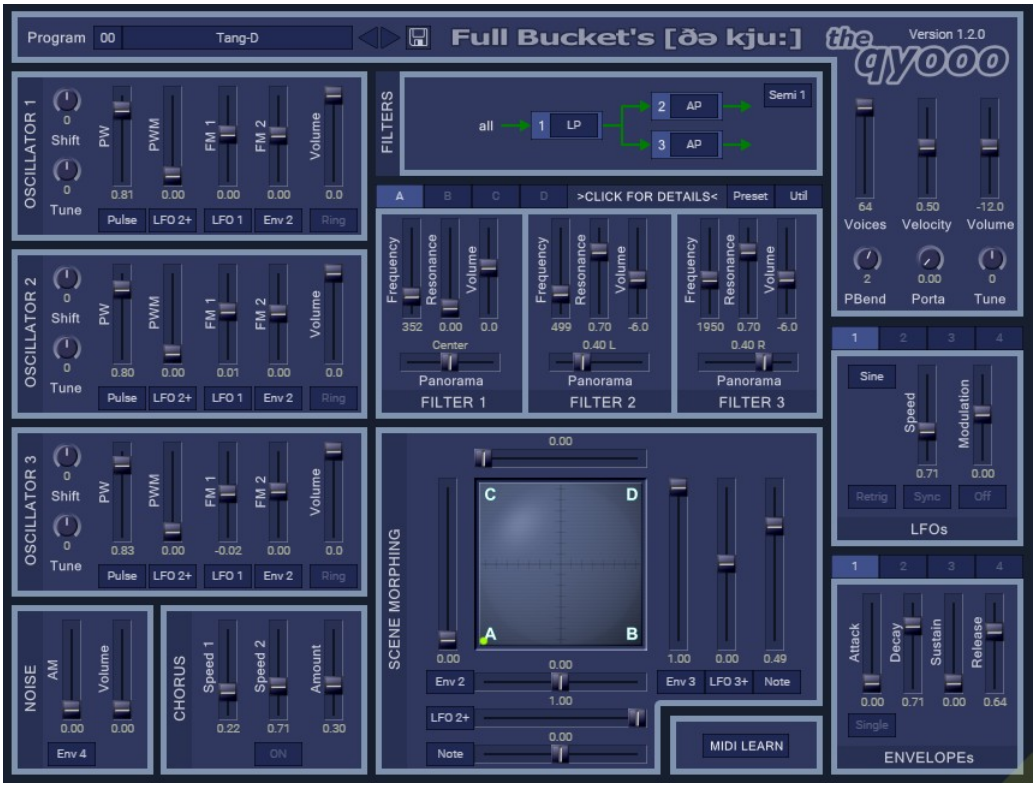
the qyooo

Polyphonic Synthesizer

Version 1.2

© 2016-2026 by Björn Arlt @ Full Bucket Music
https://www.fullbucket.de/music

Additional Presets by Krezie Sounds



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Table of Contents

Introduction....3
Architecture....4
Filter Bank....5
Scene Morphing....6
Scene Editing....7
    Scene Menus....8
    Parameter Context Menu....8
Chorus....8
Modulation Sources....9
    LFO and Envelopes....9
Performance Controls....10
    Program Menu....10
    Options Menu....10
    MIDI Learn....11
    The *qyooo.ini* Configuration File....11
    MIDI Control Change Messages....11
Parameters....12
    Global....12
    Oscillator 1....12
    Oscillator 2....12
    Oscillator 3....12
    Noise....13
    Filter Bank....13
    Scene Morphing....13
    Scene A....14
    Scene B....14
    Scene C....14
    Scene D....14
    LFO 1....14
    LFO 2....14
    LFO 3....15
    LFO 4....15
    Envelope 1....15
    Envelope 2....15
    Envelope 3....15
    Envelope 4....15
    Chorus....15
Frequently Asked Questions....16

Introduction

The *qyooo* (pronounced "the Q") is a software synthesizer plug-in for Microsoft Windows (VST2/VST3/CLAP/AAX) and Apple macOS (VST2/VST3/CLAP/AU/AAX). It is written in native C++ code for high performance and low CPU consumption. Main features are:

- Three zero-delay feedback filters with different modes and arrangements
- Complex *Scene Morphing* section for filter modulation
- Three band-limited oscillators including Ring modulation
- Additional White Noise generator
- Four LFOs and envelopes
- Up to 64 voices polyphony including Portamento
- Chorus effect
- MIDI Learn – all parameters can be controlled by MIDI CC
- Double precision audio processing
- Plug-in supports Windows and macOS (32 bit and 64 bit)

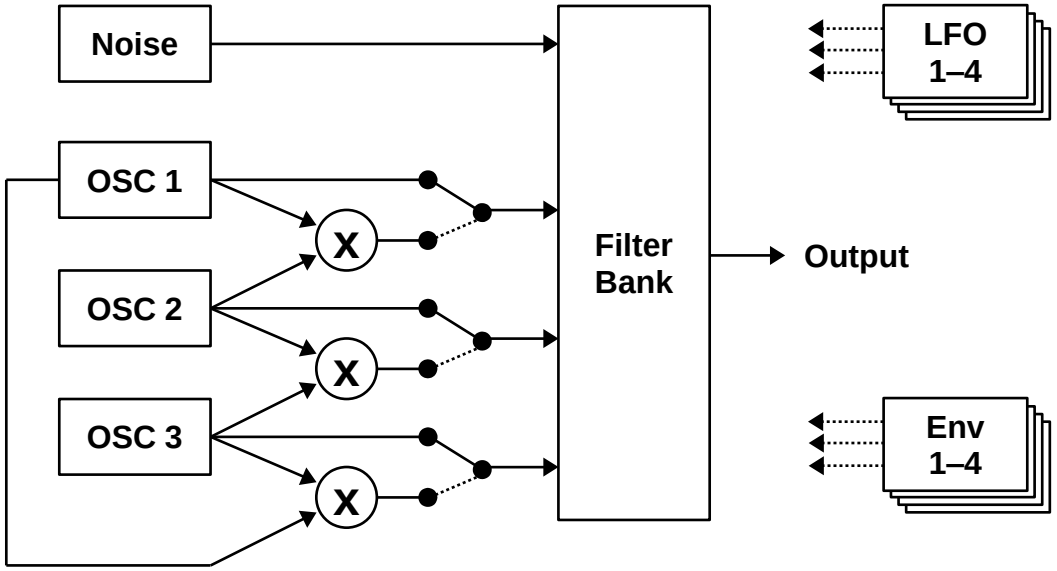
The great 25 presets from #26 (*Iron Sky*) to #50 (Woodophone) are created by Krezie Sounds – big thanks!!! ☺☺

The *qyooo* is based on the new **iPlug2** framework maintained by **Oli Larkin and the iPlug2 team**. Big thanks, guys!!! Without your work it would not have been possible to create a resizable *qyooo* user interface.

To resize the plug-in you just grab the yellow triangle at the bottom right of the window and drag it. You can save the current window size using the menu entry "Save Window Size" in the *Options Menu*.

If you have trouble with the standard version of the *qyooo*, please grab the (sound-wise identical) "N" version of the plug-in which is based on the original **iPlug** framework.

Architecture



Each voice of the *qyooo* features three oscillators and one White Noise generator feeding a bank of three filters (see next section). Alternatively, the signal of an oscillator can be replaced by the Ring-modulated version of itself with another oscillator (Osc. 1 + Osc. 2, Osc. 2 + Osc. 3, or Osc.3 +Osc. 1).

Each oscillator generates five different waveforms: *Sawtooth*, *Pulse* (including Pulse Width Modulation), *Sine*, *Triangle*, and *Prime* (a waveform containing only prime number fundamentals i.e. 1, 2, 3, 5, 7, 11, 13, 17,…).

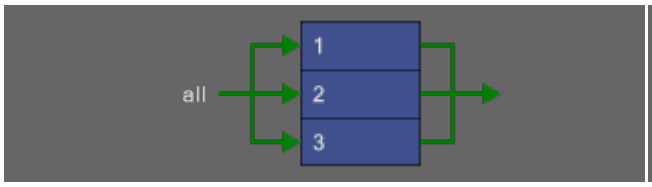
Finally, four LFOs and four envelopes are available for modulation purposes.

Filter Bank

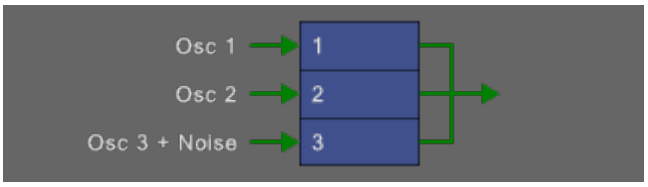
The heart of the *qyooo* is the Filter Bank consisting of three individual filters. Each filter mode can be set to *Lowpass*, *Lowpass-x* (a distorted version as known from the *Kern* plug-in), *Bandpass*, *Highpass*, *Allpass*, or *Bypass*. All filters have 4 poles except for the *Lowpass-x* which has 2 poles and *Bypass* which has of course no pole at all.

The filters can be arranged in eight different ways:

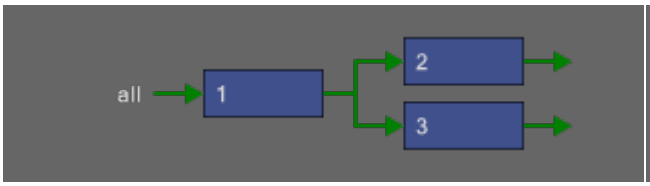
Parallel 1



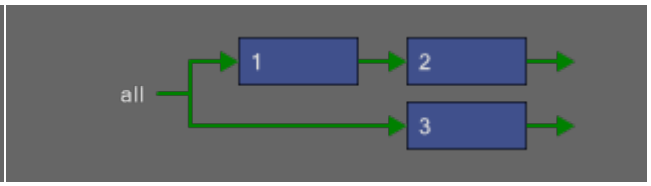
Parallel 2



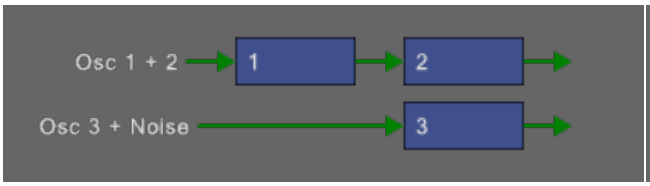
Semi-Parallel 1



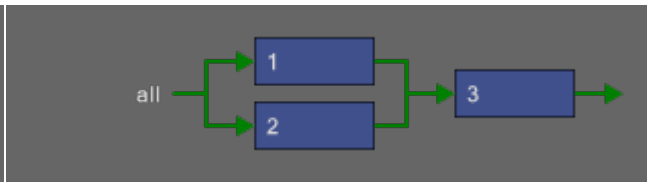
Semi-Parallel 2



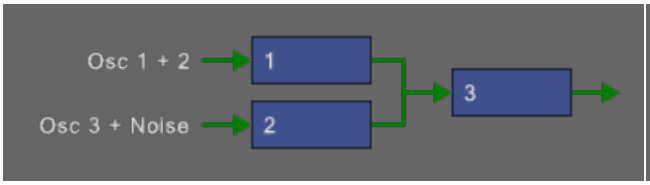
Semi-Parallel 3



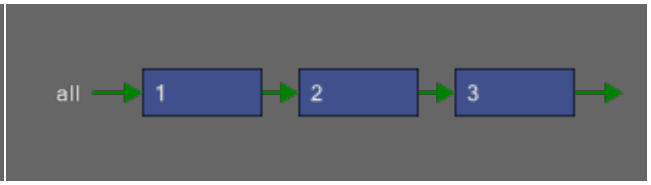
Semi-Parallel 4



Semi-Parallel 5



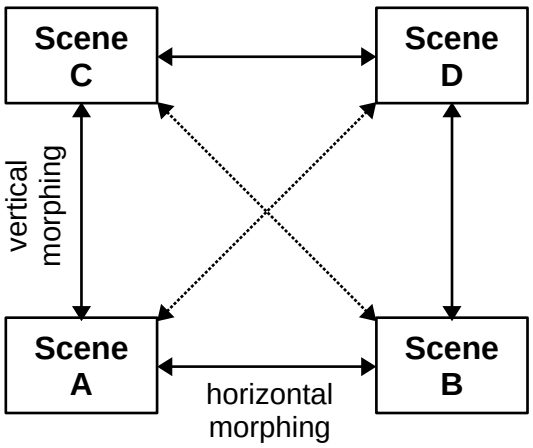
Serial



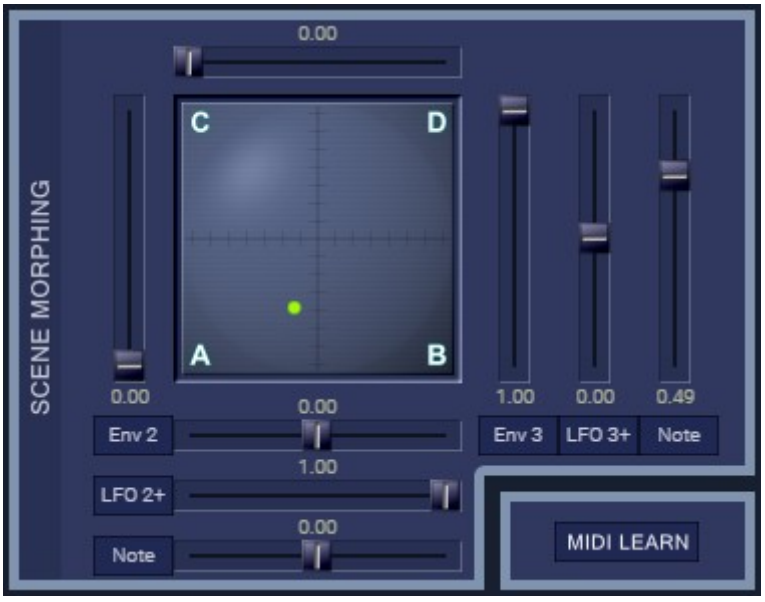
The filters are based on a (attention: buzz word!) *Zero-Delay Feedback* design and of course do provide resonance control. However, this is not the end of the story since the important part is the *Scene Morphing* used to control filter modulation… read on!

Scene Morphing

The parameters of the three filters (*Cutoff*, *Resonance*, *Volume*, and *Panorama*) are organized in four *scenes*: A, B, C, and D. Filter modulation is provided by *morphing* between these scenes. This means that you can continuously move from one setting for all filters (a scene) to a totally different one (another scene) – in two dimensions!



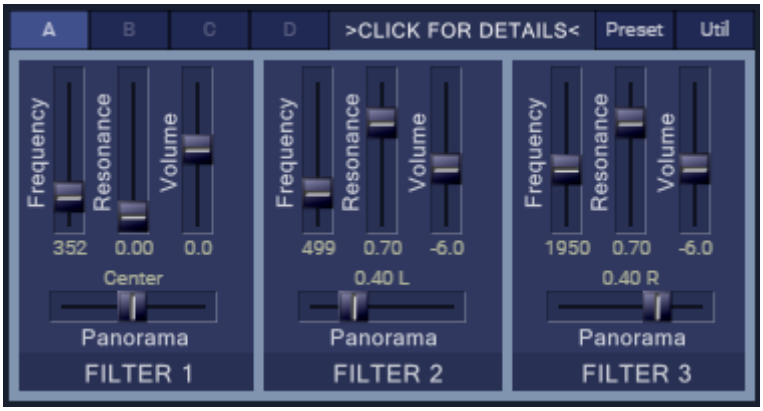
In each direction (horizontal and vertical), three different modulation sources are available for Scene Morphing. Combined with the many filter modes and arrangements, this results in a huge variety of possibilities starting from simple frequency or resonance (!) modulation to panorama control and format morphing.



To visualize the effect of the morphing, the *qyooo* features a small monitor with a green "blip" displaying the current morph state of the voice that was triggered last (you can also drag this "blip" to manually morph between scenes).

Scene Editing

It can get quite tedious to edit all the filter parameters of the four scenes. The main panel of the *qyooo* organizes the scenes in tabs showing only one scene at a time.



However, you can always >CLICK FOR DETAILS< which opens a modal dialog where you can edit all four scenes at the same time.



Furthermore, there are some utility and context menus for copying parameters or whole scenes to other filters/scenes.

Scene Menus

On top of each scene one finds the *Preset* menu which presets the filter parameters of a scene to some specific values i.e. vowel formants. This especially makes sense if one of the *Parallel* filter arrangements is selected.

The *Util* menu provides commands to copy all the parameters of the selected scene to another scene.

Parameter Context Menu

A right click on a filter parameter opens the *Parameter Context* menu. Here you can copy the selected parameter to one of the other filters of the scene or of a different scene. It is also possible to copy all parameters of the selected filter to another filter of the same scene.

Chorus

The Chorus can be switched on or off. Furthermore it is possible to set the speed rates of the two triangle-shaped LFOs modulating the Chorus as well as the modulation depth.

Modulation Sources

Many of the *qyooo*'s parameters can be modulated by various modulation sources. Sources that produce a control signal of positive values only (including zero) are called *unipolar* while sources producing either positive or negative values are called *bipolar*. The following table lists the available modulation sources and their polarity.

Source	Polarity	Description
Off	unipolar	constant value 0
On	unipolar	constant value 1
LFO1+ to *LFO4+*	unipolar	output of LFO1 to 4 ranging from 0 to 1
Env1 to *Env 4*	unipolar	output of envelope 1 to 4 ranging from 0 to 1
Velo	unipolar	MIDI note velocity
Note+	unipolar	MIDI note value
Pbnd+	unipolar	MIDI pitch bend wheel (value at center position is 0.5)
Wheel	unipolar	MIDI modulation wheel
LFO1 to *LFO 4*	bipolar	output of LFO1 to 4 ranging from -1 to 1
Note	bipolar	MIDI note (value at C4 is 0)
PBend	bipolar	MIDI pitch bend wheel (value at center position is 0)

LFO and Envelopes

Each of the four LFOs offers five waveforms: *Sine*, *Triangle*, *Square*, *Sawtooth*, and *S/H* (random); the speed rate ranges from 0 to 100 Hz. It is also possible to sync the LFOs to the host tempo and to reset the waveform start each time a key is pressed ("Retrigger"). Last not least the effective amount of the LFO output can be modulated by any other modulation source. This way you can control the LFO depth by the Modulation Wheel, create a delayed vibrato etc.

The four envelopes are full-blown ADSR generators offering a *Single Trigger* mode (known from the Minimoog and other synthesizers) which prevents them to be restarted when playing *legato* – of course this only makes sense in monophonic mode i.e. when the *Voices* parameter is set to 1.

Performance Controls

Program Menu

If you know my other plug-ins then there will be no surprises: To select one of the 64 patches just click on the program number, and edit its' name by clicking in the text field.

Options Menu

When clicking on the *Options* button, a context menu opens with these options:

Copy Program	Copy current program to internal clipboard
Paste Program	Paste internal clipboard to current program
Init Program	Initialize the current program
Load Program	Load a program file containing a patch to the *qyooo's* current program
Save Program	Save the *qyooo's* current program to a program file
Load Bank	Load a bank file containing 64 patches into the *qyooo*
Save Bank	Save the *qyooo's* 64 patches to a bank file
Select Startup Bank	Select the bank file that should always be loaded when the *qyooo* is started
Load Startup Bank	Load the Startup bank file; can also be used to check what the current Startup bank is
Unselect Startup Bank	Unselect the current Startup bank
Default Path for Program Files	Sets the default path for program and bank files
MIDI Thru	Set globally if MIDI data sent to the *qyooo* should be sent through to its MIDI output
Ignore Program Change	Set globally if MIDI Program Change data sent to the *qyooo* should be ignored
Reload Configuration	Reload the *qyooo's* configuration file (see section *The qyooo.ini Configuration File*)
Save Configuration	Save the *qyooo's* configuration file (see section *The qyooo.ini Configuration File*)
Check Online for Update	When connected to the Internet, this function will check if a newer version of the *qyooo* is available at fullbucket.de
Window Size...	Change the window size of the *qyooo*
Save Window Size	Stores the current window size to the configuration file so that it will be restored next time you load the *qyooo*
Visit fullbucket.de	Open fullbucket.de in your standard browser

MIDI Learn

Every parameter of the *qyooo* can be controlled by one MIDI controller. If you want to change the assignment of MIDI controller (CC; *MIDI Control Change*) to *qyooo* parameter the *MIDI Learn* function comes in quite handy: Just click the *MIDI Learn* button on the *qyooo*'s control panel (caption turns red) and wiggle both the MIDI controller and the parameter you want to assign (you can abort *MIDI Learn* by clicking the red button again). To save the controller assignments use “Save Configuration” in the *Options* menu (see previous section).

If you want to unlearn the assignment, right-click the *MIDI Learn* button (the label now reads “M. UNLEARN”) and activate it. Now wiggle the MIDI controller or the parameter that you want to unlearn.

The *qyooo.ini* Configuration File

The *qyooo* is able to read some settings from a configuration file (`qyooo.ini`). The exact location of this file depends on your operating system and will be displayed when you click on “Reload” or “Save Configuration”.

MIDI Control Change Messages

All parameters of the *qyooo* can be controlled by MIDI controllers, or more precise: Each MIDI controller (except *Modulation Wheel* and *Sustain Pedal*) can control one of the *qyooo*'s parameters. The mapping is defined in the `qyooo.ini` for example like this:

```
[MIDI Control]
CC7  = 2  # Volume
CC71 = 50 # horizontal Scene Morphing
CC74 = 51 # vertical Scene Morphing
...
```

The syntax is straight forward:

```
CC<controller number> = <parameter ID>
```

Given the above example, controller 71 directly controls the *X-Morphing* parameter, controller 74 the *Y-Morphing* etc. As you can see, comments are introduced by the Pound sign (#); they are here just for description purposes and completely optional.

The *parameter ID* of one of the *qyooo*'s parameters is given in the section *Parameters* below. Note that the *controller number* can run from 0 to 119, with the exception of 1 (*Modulation Wheel*) and 64 (*Sustain Pedal*); the latter two are simply ignored.

Of course, instead of editing the controller/parameter assignments in `qyooo.ini` with a text editor it is much easier to use the *MIDI Learn* function and save the configuration (see sections *Options Menu* and *MIDI Learn* above).

Parameters

Global

parameter	ID	description
Version	0	Plug-in version (reserved)
Voices	1	Number of voices (polyphony) in steps from 1 to 64
Volume	2	Master volume
Master Tune	3	Master tune
Portamento	4	Portamento time
Velocity	5	Velocity amount
Pitch Bend	6	Pitch Bend range (in notes)

Oscillator 1

parameter	ID	description
Volume	7	Volume
Shift	8	Transpose (in notes)
Tune	9	Tuning
Waveform	10	Waveform (*Sawtooth*, *Pulse*, *Sine*, *Triangle*, *Prime*)
Ring	11	Ring Modulation on/off
PW	12	Pulse Width (*Pulse* waveform only)
PWM	13	Pulse Width Modulation (*Pulse* waveform only)
PWM Source	14	Source for PWM (unipolar – *Pulse* waveform only)
FM 1	15	Frequency Modulation 1 depth
FM 1 Source	16	Source for FM 1
FM 2	17	Frequency Modulation 2 depth
FM 2 Source	18	Source for FM 2

Oscillator 2

Same as Oscillator 1; parameter IDs range from 19 to 30.

Oscillator 3

Same as Oscillator 1; parameter IDs range from 31 to 42.

Noise

parameter	ID	description
Volume	43	Volume
AM	44	Amplitude Modulation depth
AM Source	45	Source for AM (unipolar)

Filter Bank

parameter	ID	description
Arrangement	46	Filter arrangement; see section *Filter Bank*
Filter 1 Mode	47	Mode of Filter 1 (*LP*, *LP-x*, *BP*, *HP*, *AP*, *Bypass*)
Filter 2 Mode	48	Mode of Filter 2 (*LP*, *LP-x*, *BP*, *HP*, *AP*, *Bypass*)
Filter 3 Mode	49	Mode of Filter 3 (*LP*, *LP-x*, *BP*, *HP*, *AP*, *Bypass*)

Scene Morphing

parameter	ID	description
X-Morphing	50	Horizontal Scene Morphing; see section *Scene Morphing*
Y-Morphing	51	Vertical Scene Morphing; see section *Scene Morphing*
X-Mod 1	52	X-Morphing 1 Modulation depth
X-Mod 1 Src.	53	Source for X-Morphing 1 Modulation
X-Mod 2	54	X-Morphing 2 Modulation depth
X-Mod 2 Src.	55	Source for X-Morphing 2 Modulation
X-Mod 3	56	X-Morphing 3 Modulation depth
X-Mod 3 Src.	57	Source for X-Morphing 3 Modulation
Y-Mod 1	58	Y-Morphing 1 Modulation depth
Y-Mod 1 Src.	59	Source for Y-Morphing 1 Modulation
Y-Mod 2	60	Y-Morphing 2 Modulation depth
Y-Mod 2 Src.	61	Source for Y-Morphing 2 Modulation
Y-Mod 3	62	Y-Morphing 3 Modulation depth
Y-Mod 3 Src.	63	Source for Y-Morphing 3 Modulation

Scene A

parameter	ID	description
Frequency 1	64	Filter 1: Cutoff frequency
Resonance 1	65	Filter 1: Resonance
Volume 1	66	Filter 1: Volume
Panorama 1	67	Filter 1: Stereo panorama (not applicable for *Semi-Parallel* or *Serial* filter arrangements)
Frequency 2	68	Filter 2: Cutoff frequency
Resonance 2	69	Filter 2: Resonance
Volume 2	70	Filter 2: Volume
Panorama 2	71	Filter 2: Stereo panorama (not applicable for filter arrangements *Semi-Parallel 4*, *Semi-Parallel 5* and *Serial*)
Frequency 3	72	Filter 3: Cutoff frequency
Resonance 3	73	Filter 3: Resonance
Volume 3	74	Filter 3: Volume
Panorama 3	75	Filter 3: Stereo panorama (applicable for all arrangements)

Scene B

Same as Scene A; parameter IDs range from 76 to 87.

Scene C

Same as Scene A; parameter IDs range from 88 to 89.

Scene D

Same as Scene A; parameter IDs range from 90 to 111.

LFO 1

parameter	ID	description
Wave	112	Waveform (*Sine*, *Triangle*, *Square*, *Sawtooth*, *S/H*)
Sync	113	Synchronization to host tempo
Retrigger	114	Restart wave when key is pressed
Speed	115	LFO speed (0 to 100 Hertz or note length)
AM	116	LFO Modulation depth
AM Source	117	Source for LFO Modulation

LFO 2

Same as LFO 1; parameter IDs range from 118 to 123.

LFO 3

Same as LFO 1; parameter IDs range from 124 to 129.

LFO 4

Same as LFO 1; parameter IDs range from 130 to 135.

Envelope 1

parameter	ID	description
Trigger	136	Trigger mode (*Multiple* or *Single*)
Attack	137	Attack time of envelope
Decay	138	Decay time of envelope
Sustain	139	Sustain level of envelope
Release	140	Release time of envelope

Envelope 2

Same as Envelope 1; parameter IDs range from 141 to 145.

Envelope 3

Same as Envelope 1; parameter IDs range from 146 to 150.

Envelope 4

Same as Envelope 1; parameter IDs range from 151 to 155.

Chorus

parameter	ID	description
Chorus	156	Chorus on/off
LFO 1 Rate	157	Rate of first Chorus LFO
LFO 2 Rate	158	Rate of second Chorus LFO
Amount	159	Depth of Chorus modulation

Frequently Asked Questions

How do I install the qyooo *(Windows VST2 32 bit version)?*

Just copy the files `qyooo.dll` from the ZIP archive you have downloaded to your system's or favorite DAW's VST2 plug-in folder. Your DAW should automatically register *the qyooo* VST2 plug-in the next time you start it.

How do I install the qyooo *(Windows VST2 64 bit version)?*

Just copy the file `qyooo64.dll` from the ZIP archive you have downloaded to your system's or favorite DAW's VST2 plug-in folder. Your DAW should automatically register *the qyooo* VST2 plug-in the next time you start it.

Note: You may have to remove any existing (32 bit) `qyooo.dll` from your VST2 plug-in folder or else your DAW may screw the versions up…

How do I install the qyooo *(Windows VST3 64 bit version)?*

Just copy the files `qyooo.vst3` from the ZIP archive you have downloaded to your system's or favorite DAW's VST3 plug-in folder. Your DAW should automatically register *the qyooo* VST3 plug-in the next time you start it.

How do I install the qyooo *(Windows AAX 64 bit version)?*

Copy the file `qyooo_AAX_installer.exe` from the ZIP archive you have downloaded to any of your system's folder and run it. Your AAX-enabled DAW (Pro Tools etc.) should automatically register *the qyooo* AAX plug-in the next time you start it.

How do I install the qyooo *(Mac)?*

Locate the downloaded PKG package file in Finder (!) and do a right- or control-click on it. In the context menu, click on “Open”. You will be asked if you really want to install the package because it comes from an “unidentified developer” (me ☺). Click “OK” and follow the installation instructions.

What is the plug-in ID of the qyooo*?*

The ID is **`fbqy`**.

How can I decrease the qyooo*'s CPU load?*

Always try this:

- If you don't need one of the three oscillators, set its volume to 0.
- If you don't need one of the three filters, set its mode to *Bypass*.

Whenever it does not degrade the *sound* you need, try this:

- Reduce polyphony, i.e. the number of voices.
- Turn of tempo-synchronization of the LFOs.

I spent a lot of time customizing the MIDI controller/parameter assignments. Can I save these assignments?

Yes, by using "Save Configuration" in the *Options* menu (see section *Options Menu*).

Why doesn't the configuration file (qyooo.ini) *get saved?*

Under Windows, you may have placed the *qyooo* files `qyooo.dll/qyooo64.dll` and `qyooo.ini` into a "protected" folder somewhere under `"C:\Program Files\..."`? In this case you should use a `VstPlugins` directory that lies "outside" the protected folder (also see section *Options Menu*).

I twiddle the panorama of Filter 1/2 but nothing is happening!

Check if you have selected a *Semi-Parallel* or *Serial* filter arrangement: A filter that sends its output signal to the input of another filter cannot be positioned in the stereo field since filter inputs are always processed in mono.

How do I know if a new version of the qyooo *is available?*

When connected to the Internet, open the Options menu (see section *Options Menu*) by clicking the disk icon and select the entry "Check Online for Updates". If a new version of the *qyooo* is available on fullbucket.de the respective information will be shown in a message box.

Again another stupid plug-in name with to many "o"s in it...!?

Indeed. Be grateful that I spare you the German umlauts.