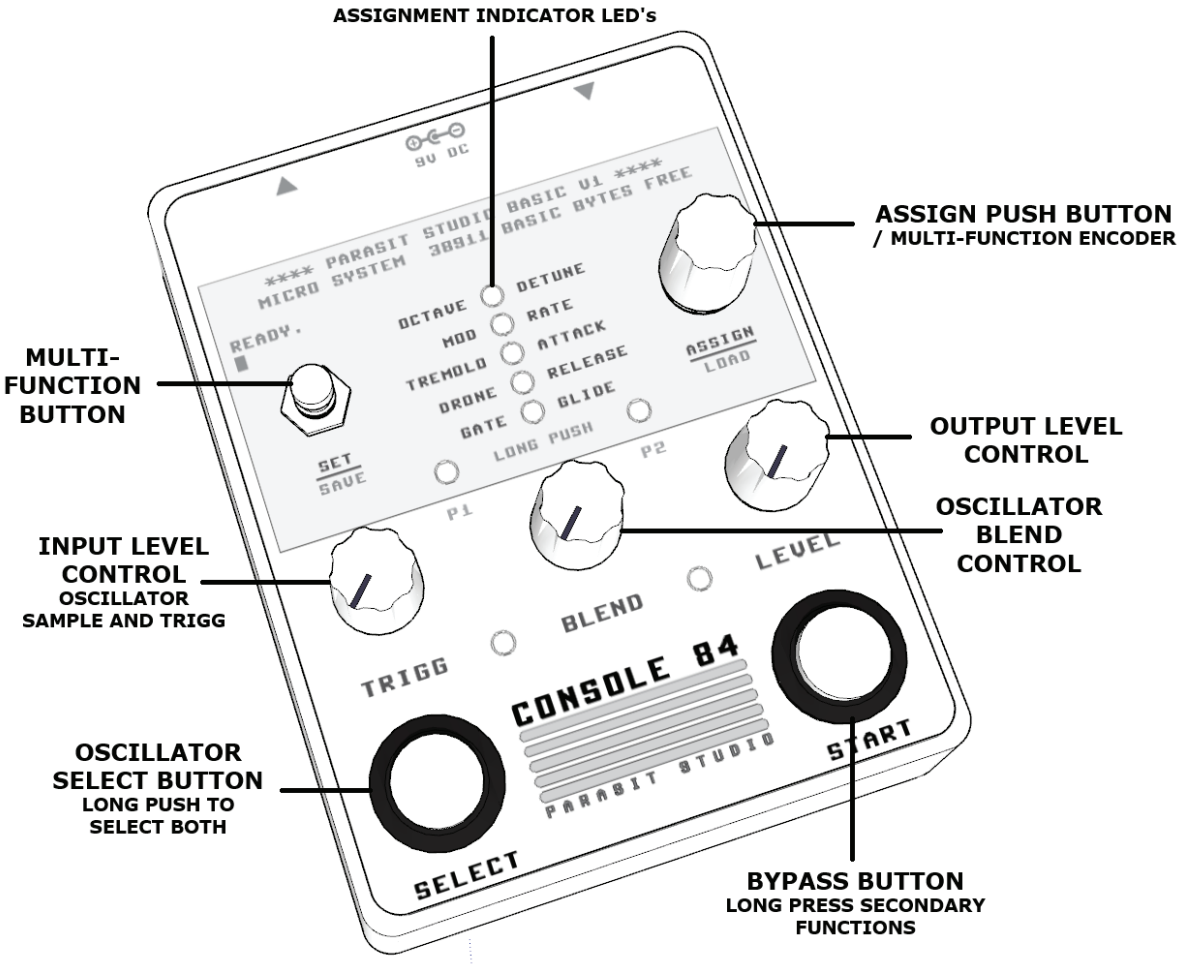
CONSOLE 84
user manual

v1.0

CONSOLE 84

guitar synthesizer

Supply: 9V DC, negative center
Current draw: 33mA



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Intro

The Console 84 is a monophonic guitar synth and fuzz pedal inspired by the 8-bit computers and gaming consoles from the 80's.

The goal when designing this pedal was to make it versatile, musical and just super fun to play.

It's based around the features (and limitations) of two AVR32DB48 microcontrollers.

KEY FEATURES

* Two oscillators (P1 and P2)
* Individual settings for each oscillator
* Fuzz mode! (P1 only, see page 9)
* Sequencer mode (P2 only, see page 10)
* Separate envelopes with attack and release
* Note latching, so the oscillators can overlap
* Five octave settings and detune control
* Five frequency modulation effects
* Tremolo with 4 different waveshapes
* Drone mode with frequency control
* Variable portamento / glide
* Five save slots to easily store and recall your favourite settings

3.

Tracking

Tips and tricks

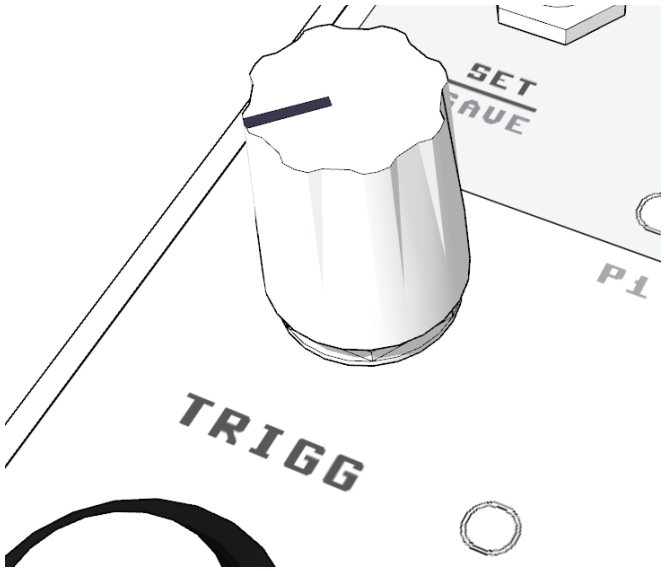
Keep in mind that these oscillators are monophonic, so play single notes as clean as possible.
Only the fuzz mode is good for chords (see page 9).

It’s recommended to use the neck pickup on the guitar to get the most stable tracking. You can try palm-muting when playing low notes to get less octave jumping. Instead of playing low notes on your guitar, you can adjust the octave settings to get really low and fat sounds higher up on the neck.

Playing this pedal takes a while to used to!
it’s almost like playing a different instrument, so it will take some adjustment to your normal playing
to get the most out of it.

4.

Trigg



The TRIGG knob needs to be turned up to get any sound out of the pedal. It controls the input level so that it detect when you play a note / pluck the string.

While the trigg LED lights up, the selected oscillator samples the input frequency. It also triggers the attack portion of the envelope for that oscillator.

When the LED turns off again, the selected oscillator will hold/latch the note and start the release portion of the envelope so that the note begins to fade out. *

You want to adjust the trigg to the sweet spot where your notes triggers and turns off again fairly quick so you get the release envelope to kick in.

* default behaviour that can be changed with various settings.

5.

Select

The Console 84 has two oscillators called P1 and P2.
- Player 1 and Player 2

Change selected oscillator
Press the SELECT button to toggle between P1 or P2.

Select both oscillators
Do a long press of the SELECT button to select P1+P2.

To change the oscillator settings, either P1 or P2 needs to be selected, not both. When both oscillators are selected, you can only save/load settings. Read more about memory on page 17.

6.

Osc/Blend

The BLEND knob blends between oscillator P1 and P2

Oscillator settings

- The selected oscillator is the one that will respond to your playing and trigger the sample and envelope.

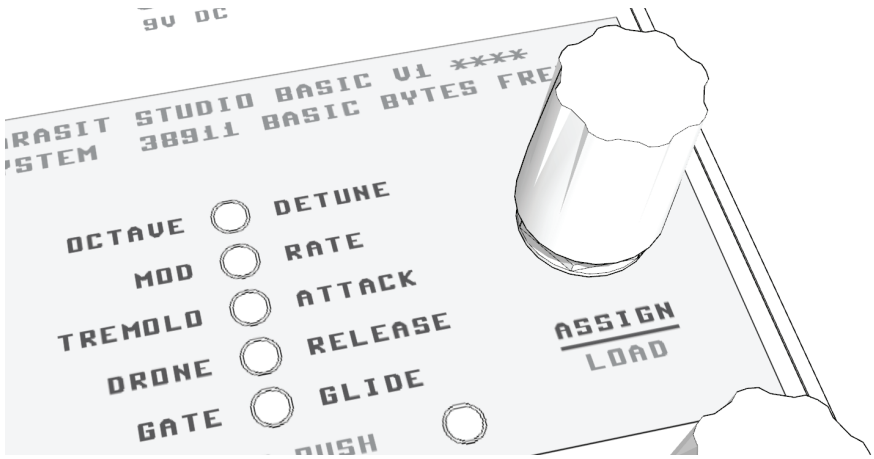
- The selected oscillator is also the oscillator that you can change the settings for using the rotary encoder / ASSIGN button and the SET button.

Oscillator RESET
- Hold down START and press SET.

It will reset all the setting of the selected oscillator.

7.

Assign



The red rotary encoder is also a push button!
- the ASSIGN button.

Press it to cycle through the 5 different assigments.
It changes the functionality of both the rotary encoder itself and the SET button (for the selected oscillator).
For example -

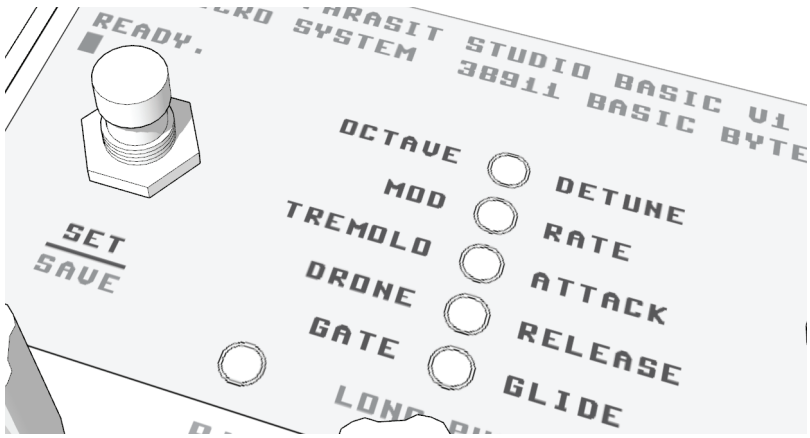
Position 1:
The SET button cycles through the octave settings.
The rotary encoder detunes the oscillator.

Position 2:
The SET button cycles through the modulation effects.
The rotary encoder controls the rate of those effects.

And so on... This multi-functionality means that the rotary encoder effectively replaces 19 knobs!
(if each function/player had its own dedicated knob)

8.

Set



The SET button is a multi-functional button that does different things depending on the assign position.

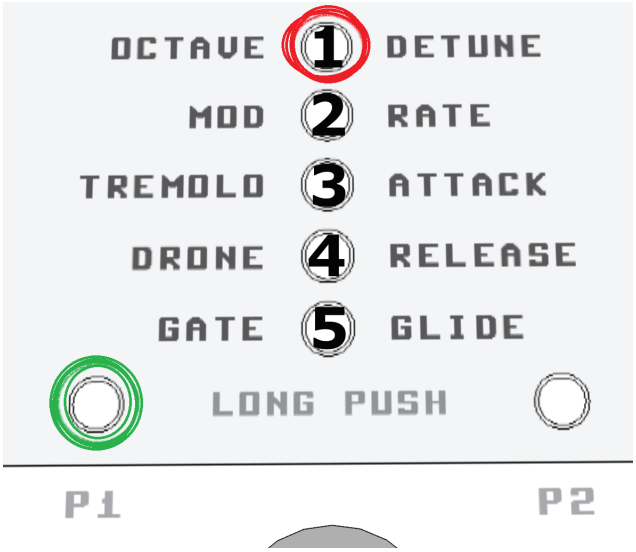
The LED column indicate which functionality the SET button is assigned to (same with the rotary encoder).

Some functions are have several steps, for example the octave and the mod setting will cycle through different setting, while other functions like the drone or the gate are just simple on/off settings.

The settings are temporarily reflected on the LED's after a button press or when you turn the encoder - which setting you are on when you cycle through settings/rotary value, or if a setting is turned on or off.

On - LED's travel up. Off - LED's travel down.

The SET button also have additional functionality.
See page 19 for all SET button long press functions.



9.

FUZZ mode

The Fuzz mode is unique to the P1 oscillator.
It will disable the oscillator and put out a raw and gated square wave fuzz instead that you can play chords with.

To enter Fuzz mode
- Select P1
- Assign position 1.
- START or SET button long push.

To go back into oscillator mode, press the SET button, or do a long press of the START button again.

The Fuzz and sequencer modes was added very late in the development. That's why they are a bit hidden. When the fuzz mode is active, the LED's will display a knight rider / Cylon pattern to show you that you are in fuzz mode. You can make the fuzz more or less gated by adjusting the TRIGG knob.

10.

Sequencer
1/2

Sequencer Mode is unique to the P2 oscillator.
It will enable a pseudo random pattern sequencer with 5 different settings instead of the octave and detune controls (it modulates those settings instead).
It’s a bit similar to an arpeggiator, and will play notes in a scale from the current sampled note.

To start the sequencer
- Select P2
- Assign position 1.
- START or SET button long push

The rotary encoder now works as a rate control and you can push the SET button to cycle through the 5 different sequencer settings (in assign position 1).

Do a long push of the START button again to turn the sequencer off.

Tap Tempo
The sequencer also has a tap tempo function!
So that you can easier sync it to your tracks.
To use the tap tempo - P2 selected, assign 1.
Then hold the ASSIGN button and press the SET button a few times in the tempo you want.

11.

Sequencer
2/2

The five pseudo random pattern settings are:

SCALE played:	RANDOMNESS by:
1. Octave pattern	rate
2. Octave pattern	input note + rate
3. Pentatonic scale	output note + input note + rate
4. Major scale	general input note + rate
5. Minor scale	general input note + rate

Setting 4 and 5 are randomized based on the general input note, even if you are playing only the other oscillator (P1)...

A tip!
- select P2, then play a note to set the base note
- switch over to P1 and play that oscillator to affect the randomness of the sequencer while still keeping it locked into the same range of notes.

To keep the sequencer from just fading out, you can activate the P2 drone mode (assign 4 - SET button).

When drone mode is active, each new note of the sequencer will trigger the envelope by itself, so you can even change the attack and release rate of the envelope to get short and plucky sounds from the sequencer!

12.

Assign 1

OCTAVE / DETUNE
Assign position 1

- The SET button cycles through 5 octave settings.

1. Unison
2. One octave down
3. Two octaves down
4. One octave up
5. Two octaves up

- The encoder can detune the oscillator up to a 5th, from the current octave setting. *

SET button Long press functionality
P1 - enable Fuzz mode
P2 - start the sequencer

** This opens up the possibility to create chord like harmonies when playing both the oscillators at the same time. The different octave settings are great for creating either lower or higher notes while still playing the guitarneck where you find that it has the best tracking.*

13.

Assign 2

MOD / RATE
Assign position 2

The Console 84 has an internal LFO (Low Frequency Oscillator) with a few different types of modulation.

- The SET button cycles through 5 mod settings:
1. Vibrato
2. Pulse Width Modulation (PWM)
3. Filter sweep
4. Alternating octaves
5. Ring modulation

The encoder controls the rate of the active mod.
All these modulations have their own individual rates.

Alternative Modulation Modes!
By doing a long press of the SET button (in Assign 2), you will change the modulation to alt versions that are one shot triggered by the trigg input.

See page 19 for more info on the alt modulations.

The alternating octaves are dependent on the current octave setting! At unison, it will toggle between unison and one octave down. At one octave down, it will toggle between one and two octaves down and so on...

14.

Assign 3

TREMOLO / ATTACK
Assign position 3

- The SET button will activate the tremolo and cycle through four different wave shapes.

1. Triangle wave
2. Sawtooth (falling)
3. Sawtooth (rising)
4. Square wave

The encoder normally controls the attack rate of the envelope. Turn it up to make the attack slower/longer.

When the tremolo is active it controls the rate of the tremolo instead.

Alternative Attack Mode
By doing a long press of the SET button (in Assign 3), you will change the default attack mode to alt mode.

The alt attack mode always resets the volume down to zero with every new input trigg and then starts the attack portion of the envelope. This is most noticable when you slow down the attack.

See page 19 for all SET button long press functions.

DRONE / RELEASE
Assign position 4

- The SET button turns “Drone” on or off.

Drone basically bypasses the release portion of the envelope, leaving the volume at a constant level, just droning away...

This is very useful when you are playing around with the different modulation settings, the detune or the P2 sequencer.

The encoder normally controls the release rate of the envelope.

With the Drone Mode on, the encoder can be used to tune the frequency of the oscillator instead. *

** With the exception of P2 with the sequencer on. Then it will control the envelope release as normal.*

That is because the sequencer triggers the envelope by itself on every new note with drone activated, so it’s nice to be able to still change the envelope.

16.

Assign 5

GATE / GLIDE
Assign position 5

- The SET button turns the gate on or off.

The gate will turn the output off when no input signal is present, so it’s useful to activate if you want to play staccato riffs.

The encoder controls the amount of portamento / glide between the notes from no glide up to a crazy slow transition between the notes.

The gate sensitivity and timing can be a bit affected by the TRIGG control.

Tip! The glide a fun feature to use in combination with the ring modulation...

17.

Memory

SAVE / LOAD
The Console 84 has five save slots so that you can save and load your favourite settings.

To be able to save or load, both oscillators needs to be selected (SELECT button - long press).

Press the ASSIGN button to select the slot that you want to save to or load from.

When both oscillators are selected, the assign LED will be blinking to indicate that you are in save/load mode.

SAVE - do a long press of the SET button.

LOAD - do a long press of the ASSIGN button.

After a successful save or load, the bypass LED will be blinking briefly. A load will abort if there's no previous save in the selected memory slot.

HOLD TIME
When both oscillators are selected, you can turn the encoder to control the hold time for the trigging. It is a shared setting for both oscillators.

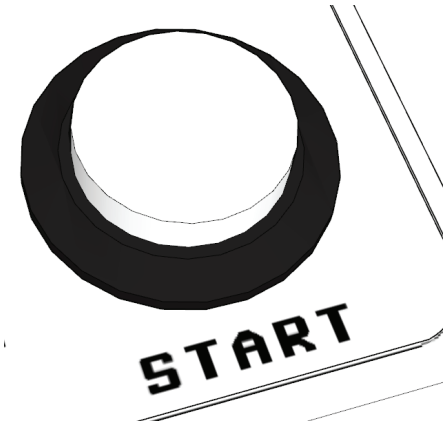
18.

Start

The START button
The Start button toggles the bypass on/off.

Long press functionality
A long press of the START button have alternative functionality, depending on the Assign position. This was included to make it alittle more “live friendly” so you can turn certain features on/off quickly without having to toggle through all the settings with the SET button and also quickly load settings on the fly.

P1 or P2 selected:
Assign 1 (P1) - Fuzz mode on/off
Assign 1 (P2) - Sequencer on/off
Assign 2 - Modulation on/off
Assign 3 - Tremolo on/off
Assign 4 - Drone mode on/off
Assign 5 - Glide on/off



When turning off features like the modulation for example, it will remember the last modulation type that was active when you turn it on again using the START button long press. If no modulation was previously turned off with the START button, it will default to the first type of modulation when turned on.

SET button long press functionality
The SET button also has additional long press functions depending on the Assign position.

Assign 1
P1 - Enable fuzz mode
P2 - Enable the sequencer

Assign 2 - alternative modulation modes

1. Deeper vibrato with a delay
2. One shot triggered PWM
2. One shot triggered filter sweep
2. One shot triggered alternating octaves pattern
2. Logic AND modulation (instead of XOR)

Tip! In drone mode, the sequencer will trigger the alt modulations with every new note...

Assign 3 - Alt Attack mode on/off
The alt attack mode will reset the volume envelope down to zero every new trigg. This is mostly noticable when you have turned the attack up.

20.

SET alt
2/2

Assign 4 - Hold time on/off (on by default)
You can turn hold off, so that the release portion of the envelope starts as soon as the attack portion is complete, even if the trigg LED is still on. This makes for quicker pluckier notes, but be aware that the trigg LED needs to turn off and on again for a new attack...

Assign 5 - note latching on/off
You can turn off latching. This means that the oscillator is always sampling the input, even when the trigg LED is turned off... Makes it a bit more forgiving to play fast melodies, but you loose the ability to latch the notes and play overlapping notes.

21.

Credits

The Console 84 was created by me, Fredrik Lyxzén. A development that started back in late 2019 and has gone through several revision from the ground up using different microcontrollers, analog circuitry and user interface layouts until it finally came together. This pedal has taken hundreds of hours of late night programming and breadboarding. When it came close to the finished version I often found myself just playing and finding new interesting sounds instead of getting any work done, so I knew that I had created something special. :)

I hope that you enjoy playing the Console 84!
/ Fredrik

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