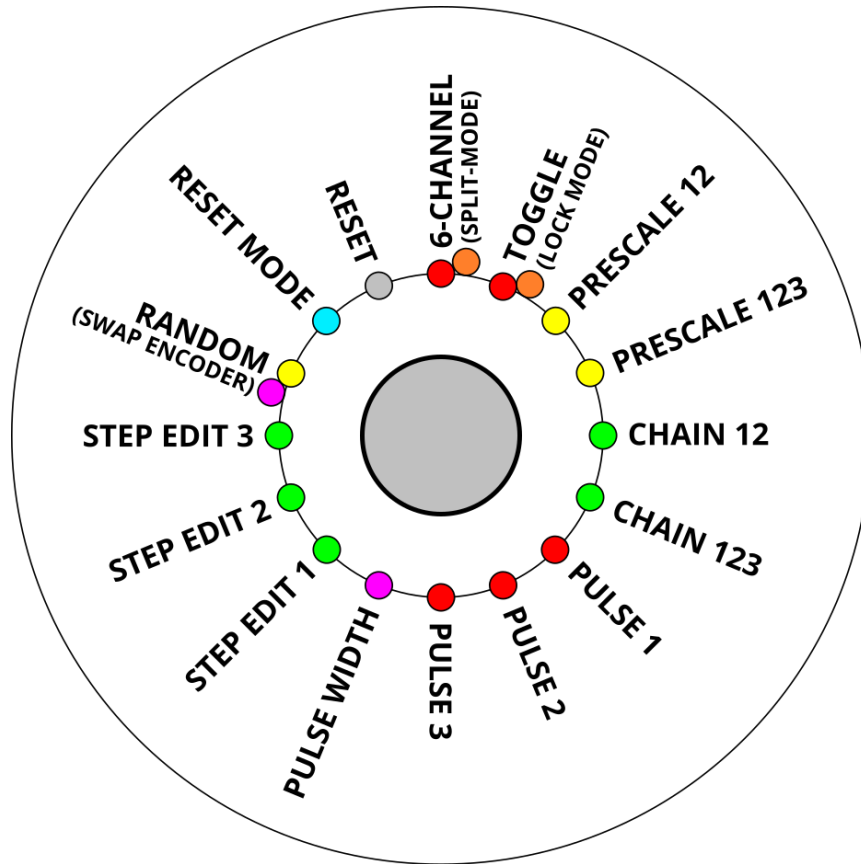
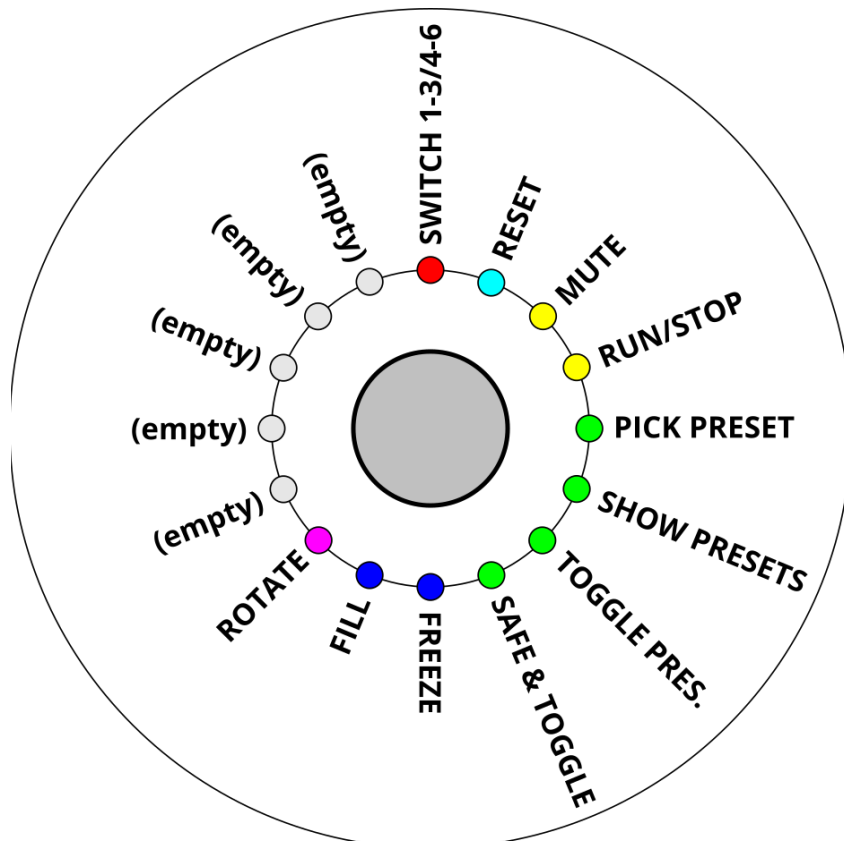
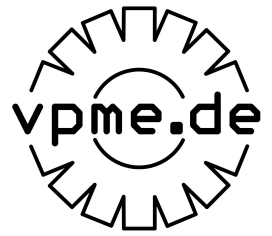


**SETTINGS:**



**F-BUTTON FUNCTIONS:**





## EUCLIDEAN CIRCLES V2

### INSTALLATION

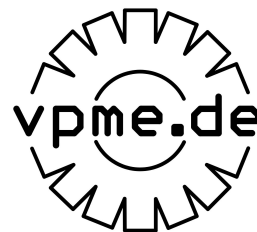
- **Euclidean Circles V2** is a **10 hp** Eurorack module, **25mm** deep
- The module **needs 5V** to operate, it does not use +12V/-12V at all. If your rack does not have a **5V** supply you will need to add that before using it
- Carefully check the **orientation** of the 16-pin power connector, the **red stripe** should be at the **bottom** of the module, see the labeling on the PCB.
- Depending on the LED brightness setting, the modules consumes between **60mA** and **170mA** from the **5V** supply
- Further information and contact details at: <http://vpme.de/euclidean-circles/>
- The optional **SixSwitches** extension allows to quickly enable/disable all 6 output channels, if not installed **do not remove the jumpers** on the back of the module!

### FIRMWARE UPDATES

- Check <http://vpme.de/euclidean-circles/> for firmware updates (and the latest manual), download and save the update **WAV** file to your PC
- The current firmware version is show in in **red** on the **bottom** circle when powering up (starting at .0, then .1, .2 etc..)
- Connect the output of your mixer/soundcard to the external trigger **CLK** input.
- Press and hold the **middle** encoder and power on your system, six **blue** LEDs in the top circle will blink.
- Make sure your speakers are muted before you play the update **WAV** file. Disable all other sounds and notifications as they can disturb the update process.
- Play the **WAV** file at full volume, you need at least **2Vpp**. If needed boost the volume with an outboard mixer or VCA. You can check the correct level with LED 2, it will light up when the unit receives the update data correctly.
- To **start** the update process, stop and rewind the **WAV** file and press the **top** encoder, LED 1 will blink **yellow**. Now play the file, LED 2 will light up and LEDs 3-6 will blink to show the update process. In addition some LEDs will light up **red** and turn **green** to show the upgrade progress
- When the update is **complete** two circles will blink **green**. Press any encoder to leave the updater and start the unit in normal mode

### BASIC OPERATION on channels 1-3 and 4-6

- Connect a clock signal to the clock input labeled **CLK**
- Press **top**, **middle** or **bottom** encoder to cycle between states:
  - **BLUE/CYAN** controls the **length** of the sequence
  - **ORANGE** controls the **fill** of the sequence
  - **PURPLE/RED** controls the **start** point of the sequence
  - (see [https://en.wikipedia.org/wiki/Euclidean\\_rhythm](https://en.wikipedia.org/wiki/Euclidean_rhythm))
- Channels **1-3** and **4-6** output a signal for every fill position of the sequence
- A rising edge signal on the **RST** input will reset all channels to step 1 on the next clock signal (see **SETTINGS** for alternative reset mode)
- Long press the **top** encoder or press the **F-BUTTON** to **toggle** control between channels **1-3** and **4-6** (see below for other uses of the **F-BUTTON**)

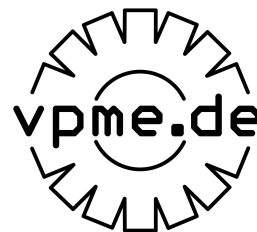


## AUTO CLOCK

- Long press **middle** encoder to enter **AUTO CLOCK** mode
- Rotate **middle** encoder clockwise to increase internal clock speed, the range is between **10** and **2500 bpm**
- Rotate fully counterclockwise to **stop** internal clock
- Use the **F-BUTTON** to **tap** in a tempo, long press the **F-BUTTON** to **stop** AUTO CLOCK
- Press the **middle** encoder to exit **AUTO CLOCK** settings

## PRESETS and SETTINGS

- The current rhythm is **automatically** stored and loaded at power-up
- Long press **middle** encoder to enter **PRESETS and SETTINGS** mode
- One preset always loads and saves the length, fill and start values for all six channels (and the **STEP EDIT** sequence, see below)
- **Top** encoder selects and stores presets:
  - **current** preset is shown with a **green LED**
  - **load preset:** rotate **top** encoder to select preset **1-16** and press it shortly to **load** the preset
  - **save preset:** rotate **top** encoder to select preset **1-16** and **long press** it until the circle turns all green to **save** the preset
  - loading or saving a preset will cancel the **PRESETS and SETTINGS** mode and return to basic operation
- **Middle encoder** turns settings on and off:
  1. **6-CHANNEL – off:** channels **4-6** output the **offbeats** of channels **1-3**, **on:** six independent channels
  2. **TOGGLE** – output signal **toggles** at each pulse instead of following the input clock
  3. **PRESCALE 12** – channel **2** advances by each step set on channel **1**
  4. **PRESCALE 123** – channel **2** advances by each set step of channel **1** and channel **3** advances by each set step of channel **2**
  5. **CHAIN 12** – channel **1** is played once followed by channel **2**; the combined sequence is output on channel **1**
  6. **CHAIN 123** – channel **1** is played once followed by channel **2** and then channel **3**; the combined sequence is output on channel **1**
  7. **FIXED PULSE 1** – fixed output pulse width for channel **1** and **4**
  8. **FIXED PULSE 2** – fixed output pulse width for channel **2** and **5**
  9. **FIXED PULSE 3** – fixed output pulse width for channel **3** and **6**
  10. **PULSE WIDTH** – off: **10 ms**, on: **1 ms**
  11. **STEP EDIT 1** – enable STEP EDIT mode on channel **1** and **4**
  12. **STEP EDIT 2** – enable STEP EDIT mode on channel **2** and **5**
  13. **STEP EDIT 3** – enable STEP EDIT mode on channel **3** and **6**
  14. **RANDOM** – **25%** probability of muting a step on all channels
  15. **RESET MODE** – disabled: reset is **edge triggered**, enabled: reset is **level triggered**
  16. **RESET** - manually resets all channels to the first step on the next external or internal clock signal
- **RESET ALL** - press and hold **middle** encoder on setting **16** for at least **5** seconds to erase all presets and settings, **use with caution**
- Rotate **bottom encoder** to control the **brightness** of the LEDs in 8 steps
- Press **bottom encoder** to exit **PRESETS and SETTINGS** mode



## STEP EDIT mode (new in V2)

- When **STEP EDIT** mode is enabled, the trigger sequence can be edited manually, rotate the encoder to move the **red** blinking **cursor** and press the encoder to **enable or disable** that step
- To **enable/disable** several steps, press and hold the encoder while rotating
- The **length** of the **STEP EDIT** sequence is the **same length** as in Euclidean mode, to change it, switch to **EUCLIDEAN** mode then back to **STEP EDIT** mode
- The **STEP EDIT** sequence is independent of the Euclidean sequence, **both** will be saved

## SPECIAL SETTINGS (new in V2)

- Activate **special** settings with a long press on these normal settings:
  - 1. **SPLIT MODE** - all settings like PRESCALE, CHAIN, STEP EDIT and RANDOM only apply to channels **1-3**, channels **4-6** are **always** in **EUCLIDEAN** mode, and **6-channel** mode is active
  - 2. **LOCK MODE** - encoders are locked into changing **fill** only
  - 14. **SWAP ENCODERS** - swap the function of **top** and **bottom** encoder, **SETTINGS** are on the **top** and toggle **1-3 / 4-6** is on **bottom** encoder

## F-BUTTON (new in V2)

- **V2** adds a special **F-BUTTON** which can be assigned **one** of several functions
- Per default, **F-BUTTON** toggles between channels **1-3** and **4-6**
- Long press **bottom** encoder to enter regular **SETTINGS**, then press **F-BUTTON** to enter **F-BUTTON** settings (**white** background):
- Use the **middle** encoder to select the **F-BUTTON** function, press to confirm:
  - 1. **SWITCH** control between **1-3** and **4-6** (needs settings **#1** enabled)
  - 2. **RESET: manual reset**, same as pulse on **RST** input
  - 3. **MUTE: hold F-BUTTON** to mute all outputs
  - 4. **RUN/STOP: start and stop**, start also **resets** all circles
  - 5. **PICK A PRESET: hold F-BUTTON** and select a preset from top circle, press **top** encoder to load
  - 6. **SHOW PRESETS: press F-BUTTON** to show/hide preset selection circle
  - 7. **TOGGLE** between **odd/even** presets, e.g. between 1-2, 3-4, 5-6 etc. saved presets are **not changed**.
  - 8. **SAVE AND TOGGLE: like TOGGLE**, but the current rhythm is saved to the preset before it is exchanged
  - 9. **FREEZE: hold down F-BUTTON** and change any circle rhythm, release **F-BUTTON** and old rhythm will be loaded.
  - 10. **FILL: hold down F-BUTTON** and then press and hold any of the encoders to generate a **fill** on that channel
  - 11. **ROTATE: hold F-BUTTON** and use encoders to rotate the circles, in **EUCLIDEAN** and **STEP EDIT** sequencer mode
  - 12. (empty, free for future updates)
  - 13. (empty, free for future updates)
  - 14. (empty, free for future updates)
  - 15. (empty, free for future updates)
  - 16. (empty, free for future updates)
- Press **F-BUTTON** or **bottom** encoder to exit **F-BUTTON** settings

**ENJOY!**