



ELEKTROAKUSTISCHE MANUFAKTUR

uniCYCLE

Bedienungsanleitung
User Guide

Foreword

An oscillator is not the only sound source in a synthesizer or modular system, but it is surely the most important one. Because of this, there is a good reason for it to be fully convincing. This was our approach for our synthesizers PERfourMER, Mono Lancet and '14 Analogsynthesizer. The very same demand and standards were true for the development of uniCYCLE.

Being a modular component, uniCYCLE has been equipped with a couple of special capabilities such as hard- and soft-sync as well as modulation options for its waveforms. As a result, uniCYCLE offers VERMONA's superior analogue sound quality and musicality as well as versatile possibilities that can fully unfold in a modular scenario.

Your VERMONA crew from the
Elektroakustischen Manufaktur, Erlbach

Unpacking

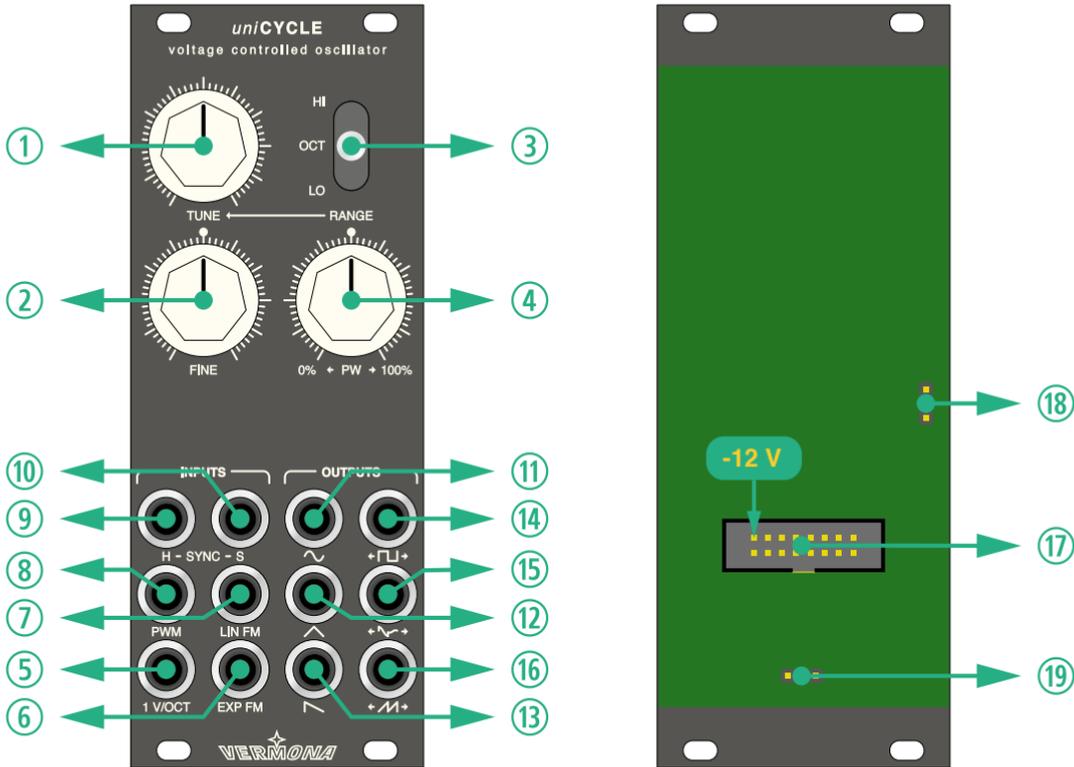
To ensure top quality, we carefully checked the uniCYCLE module before packaging. Nevertheless, we cannot fully exclude damage during transportation. Therefore, we kindly ask you to inspect uniCYCLE by yourself, once you receive the module. In case there is anything unusual about the unit or its packaging, do not hesitate to contact your dealer or us, to solve the problem.

You should find the following items in the box:

- the uniCYCLE module
- one 16-pole ribbon-cable
- four M-type screws 3 x 6 mm with matching plastic washers
- this operating manual



You probably are curious about the sound and possibilities of your uniCYCLE. However, we recommend you to completely read this manual before trying out the module. The jumpers on the module's rear (see "*Jumper*" on page 11) can only be accessed with the module not being installed in a frame. It's worth, knowing their functions in before to set them up for your needs.



uniCYCLE front and rear

Setup

uniCYCLE was designed to be mounted and used in Eurorack modular systems. Its power supply, connectors and dimensions match the typical specifications (VERMONA Modular Case, Doepfer A-100 and compatible systems). Mounting equals any other Eurorack module:

1. **Switch off the power supply!** For safety reasons, also remove the detachable power cord from your frame before mounting the module!
2. Connect the supplied ribbon-cable with its 16-pole connector to the corresponding multi-pin connector on uniCYCLE's rear.



The corresponding plug socket is protected against reverse polarity. Therefore, the 16-pole connector of the ribbon-cable will only fit in one direction into the module. The supplied ribbon-cable is color-coded at the -12 volts position. Note, that this may differ from other manufacturers. Therefore, only use the supplied ribbon-cable to connect uniCYCLE to your frame's system bus!

3. Connect the ribbon-cable's other 16-pole connector to an empty plug-socket of your frame's system bus. Make sure the color-coded side of the cable points towards -12 volts!



Connecting the ribbon-cable with reverse polarity can lead to damage of your module or other modules when powering the system! Double-check the connections before continuing – safe is safe!

4. Mount uniCYCLE to your modular frame using the supplied screws. To protect the unit's surface from scratches, use the supplied flat plastic washers.
5. Reconnect the power cord to your frame and switch on the power-supply.

uniCYCLE is now ready to operate.



uniCYCLE offers a highly stable tuning. After a short warm-up-period, the oscillator stays fully in tune at room temperature. According to its specifications, the unit shall be used in an environmental temperature between 0° C and 40° C.

Control Elements

Controls and Switch

With just three controls and a single switch, uniCYCLE can be operated really easy and with high effectiveness.

TUNE ① sets the oscillator's pitch. The available range depends upon the setting of the **RANGE ③** switch.

FINE ② allows pitch-adjustments within a range of plus/minus one semitone.

RANGE ③ calls up one of three different frequency ranges covered by **TUNE ①**.

HI	TUNE ① covers the full audio range.
OCT	TUNE ① covers a range of plus/minus one octave.
LO	uniCYCLE works as LFO. TUNE ① covers the full low frequency range.



When in OCT-mode, TUNE ① offers a higher resolution around its center setting, allowing precise tuning of the oscillator. Moving the control further in this mode, the tuning reacts exponentially until reaching an octave at its furthest position.

PW ④ adjusts the pulsewidth of the three waveforms **Square** + , **Even** +  and **Double Saw** + .

In its center position the symmetry is 50%. The far left and far right position means 0% respectively 100%. (see "**Waveform Outputs**" on page 9).

CV Inputs

By using the **INPUTS** section, uniCYCLE's functions can be modulated by control voltages.

1V/OCT ⑤ This input allows control over the oscillator's pitch with accurate octave tracking. The principle corresponds to all common VCOs in eurorack: incoming control voltages change the pitch by one octave per volt.

This input is usually connected to the so-called key-CV, deriving from a keyboard, a step-sequencer or a MIDI/CV-interface.

There is a jumper on the module's rear for setting up if and how uniCYCLE received the key-CV from the system bus. (see "**1V/OCT**" on page 11)

EXP FM ⑥ This CV-input modulates uniCYCLE's frequency. It works with an exponential characteristic. By using this input audio-frequency sources the perceived pitch will change.

LIN FM ⑦ This CV-input works with a linear characteristic. As long as the modulation intensity doesn't force uniCYCLE's frequency below zero, there is no perceived pitch change with audio-frequency sources.

PWM ⑧ This CV-input modulates the pulsewidth/symmetry of the three waveforms **Square** (+□→), **Even** (+~→) and **Double Saw** (+▲→). The modulation will be added to the manual **PW** ④ setting.

There is a jumper on the module's rear for selecting if the pulsewidth-modulation will only affect the square wave (+□→) (see "**PW**" on page 11)

Sync Inputs

uniCYCLE offers two inputs for being synchronized to external sources. One input is for hard-sync **H** ⑨, the other for soft-sync **S** ⑩.

H – SYNC ⑨ The hard-sync input **H** ⑨ works with signals with positive flanks like square-waves from oscillators, trigger- and gate-signals. With each incoming flank uniCYCLE's waveforms will be abruptly reset and started from zero. As a result the shapes will be cut and deliver more or less hard tones.

Beside classical sync-sounds, the **H** input ⑨ can be used for restarting the waveforms with gate-signals.

SYNC – S ⑩ The soft-sync input **S** ⑩ works with waveforms from oscillators, gate-signals or even d.c. voltages.

If the ratio between the signal applied to the **S** input ⑩ and uniCYCLE's frequency is integer, the oscillator locks in and generates pure waveforms. With ratios not being integer, the resulting waveforms are being cut, similar to hard-sync. The result of soft-sync also depends on the level of the incoming signal.

Waveform Outputs

Each of uniCYCLE's six waveforms offers an individual audio output, located in the **OUTPUT** section.

You will find the standard waveforms **Sine**  ⑩, **Triangle**  ⑫ and **Saw**  ⑬ to the left. To the right, you will find the waveforms **Square**  ⑭, **Even**  ⑮ and **Double Saw**  ⑯ that can be modified by the **PW** control ④ or modulated by the **PWM** input ⑤.



The waveform shapes Even  ⑮ and Double Saw  ⑯ can be excluded from the PW/PWM-function by setting the corresponding jumper (see "PW" on page 11)



The width of the **Square**  ⑭ wave can be varied between 0% and 100%. With **PW** ④ being set to its center position, the pulsewidth is 50%. At settings of 0% resp. 100%, the waveform is inaudible.



Mirrored pulsewidth settings, e.g. 25% and 75%, deliver identical acoustic results. This is also true for the waveform shapes Even  ⑮ and Double Saw  ⑯.



Even is the opposite of the **Square** curve. Beside the base frequency it only offers even harmonics, while **Square** only offers odd harmonics. By using the **PW** ④ control resp. **PWM** ⑤ modulation, the harmonic content of the waveform is altered. Settings of 0% and 100% for the **PW** ④ control produce a sine-like fundamental note .



This sawtooth-waveform has doubled pitch compared to all other waves in uniCYCLE, but only with **PW** ④ in center-position (50%). When altering the harmonic content using **PW** ④ resp. **PWM** ⑧, also the pitch is being changed. With 0% resp. 100% a triangle with the same frequency as the other waveforms is generated - with **PW** ④ set to 0% shifted by 180°.

Jumper

1V/OCT

uniCYCLE is able to receive key-CV via the system-bus if being applied to the same bus-circuit-board from a MIDI/CV-interface or a bus-access-module. Jumper ⑩ (see "*uniCYCLE front and rear" on page 3*) allows setting whether and how uniCYCLE will react to key-CV via the bus.

	Bus-CV is being ignored (factory setting)
	Bus-CV is always applied, in parallel to the input 1V/OCT ⑤.
	Bus-CV is applied as long as the input 1V/OCT ⑤ is not in use.



If you like using key-CV via the bus board we recommend using the third setting. With the setting two (right) control voltages from the system bus and the 1V/OCT ⑤ input will be summed up which can lead to unwanted results.

PW

The function of the **PW** ④ control as well as the corresponding modulation using the **PWM** ⑧ input can be limited to **Square** (+□→) ⑭. The corresponding jumper ⑩ unit's rear (see "*uniCYCLE front and rear" on page 3*) allows two settings:

	PW ④ and PWM ⑧ only applies to the Square (+□→) waveform.
	PW ④ and PWM ⑧ applies to Square (+□→), Even (+~→) and Double Saw (+∧→)(factory setting).

Technical Specification

Levels	
waveform output level	± 5 V
optimal CV-input level	± 5 V
Maximum Power Consumption	
+12 V	70 mA
-12 V	60 mA
+5 V	-
Dimensions / Weight	
Width / Height	10 HP (129,0 mm), 3 U
Depth	45 mm
Weight	160 g



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