



# User Manual

Thank you for purchasing the Knobula Poly Cinematic polyphonic synthesiser.

Poly Cinematic is a powerful 56 oscillator synthesiser that features full 8 voice polyphony in a 12hp Eurorack format.

It is designed to be simple to use, with a dedicated control for each parameter, giving you immediate access to all the knobs that really matter in a world of smooth pads and punchy stabs. Reading through this manual will help you understand how we fitted so much functionality into such a small space and how you can get the most out of it.



## Envelope Section

The envelope section controls both the amplifier and filter to modulate the volume and filter cut-off (using the Env Depth).



### Attack

Controls The time taken for the note to build up to peak volume when a key is pressed.

### Decay | Sustain

Controls the time taken for the envelope level to decrease to zero whilst the key is pressed. Rotate past the half way point and the decay becomes infinite (Sustain) and further turning of the control will lower the sustain level.

### Release

This knob controls The portion of the envelope after a key is released. When in Sustain mode (see above) it also controls the initial decay rate to the sustain level.

### Trigger

Pressing this button will replay the last note or chord that was played into the midi input. This button will also illuminate whenever a note is being triggered. Poly Cinematic detects whenever a note or group of notes are all finally released and then stores these notes, together with velocity information, into the current chord memory slot. there are 8 chord memory slots that can be accessed by setting the position of the modulation wheel (midi) or by setting a voltage at the Chord Select input. If the unit is factory fresh, or it has just been factory reset, it will still play a single note even if there is no midi attached so that it can be played monophonically over CV Gate.

Holding down shift and pressing Trigger will save all the chords into persistent memory so they can be recalled after a power cycle.

## Filter Section

Each Poly cinematic voice contains a 12db/octave multimode resonant filter.



### Frequency

Controls the cut-off frequency of the filter.

### Env Depth

The amount by which the envelope generator controls the cut-off frequency.

### Low|Notch|High

This switch selects which filter mode to use. **Low** is a lowpass filter which attenuates frequencies above the cut-off frequency, this is the standard go-to type for most sounds. **Notch** removes frequencies at the cut-off frequency and has a nasal, phaser like quality ideal for thicker retro string sounds, and **High** is a highpass filter that cuts frequencies below the cut-off frequency, good for thinner glassier type sounds.

### Resonance

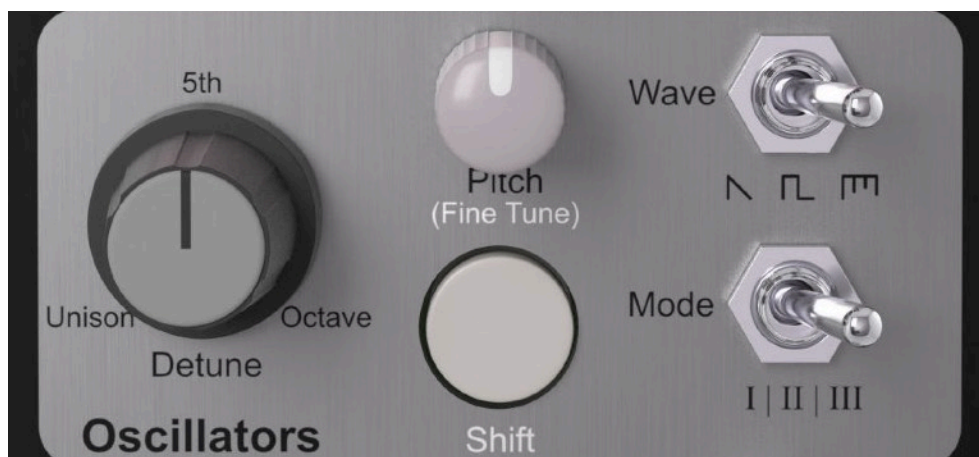
The Resonance knob controls the feedback through the filter and accentuates the sound at the cut-off frequency, making sounds more squelchy. Use carefully as it can self-oscillate at higher settings.

### Key Follow

This adjusts the cut-off frequency using the pitch of the note. At the **off** position the filter cut-off frequency is always the same no matter which note is playing, **half** increases the frequency of the filter with 50% of the pitch value and **full** tracks the filter frequency precisely against pitch, so higher pitched sounds are brighter and fully resonant sounds can be 'played' as a tune.

## Oscillator Section

There are 3 wave types in the Poly Cinematic, featuring between 3 and 7 oscillators per voice. Much thought has gone into controlling these different groups of oscillators using minimal controls in an intuitive musical way.



### Detune

This big knob controls the tuning of each selected oscillator type. It is mapped out so that it will fine tune at the important areas like unison, 5th and octave, but it will coarsely tune in-between those values for more dissonant sounds.

Turning the knob to zero will produce a unison tuning of all oscillators, and as you rotate the knob the detuning will musically blend different frequencies both up and down, with a central oscillator always playing the root note. At some point the frequencies break away into a discordant mush and regroup at a 5th above and below the centre frequency, continue turning and again the flock of frequencies continue to spread apart and then regroup into an octave and sub octave mixture. It's the most powerful knob in your rack, use it responsibly.

### Pitch

This knob controls the root note of the unit, turning it will change the frequency in discrete chromatic steps up or down up 1 octave. There is a dead area in the centre of the knob where the tuning is fixed, to prevent accidental tuning errors.

Holding down **Shift** will fine tune in cents.

### Wave

This switch selects between 3 different oscillator types:

**Wave 1 - Super Saw**, a free running 7 oscillator 'super-saw' or 'hyper saw' that can produce rich trance leads or super smooth string pads depending on your detune setting and the mode switch. Mode I is mostly a single oscillator playing the root note with side oscillators providing a subtle chorus, also when set to Unison it acts as a single sawtooth oscillator. Mode II is more intense with louder side oscillators and Mode III is with all 7 oscillators set to full, at the same volume level as each other.

*Tip: when set to unison in Mode II or III the phases of the oscillators are frozen in place, so random timbres can be grabbed and locked by twisting the detune control into unison from a detuned setting.*

### Wave 2 - Square

Square is based on a three oscillator design with three wave shape variations selected by the mode switch. Unlike the super saw which is free-running the square is phase locked to the start of the note which allows more percussive tones to be created for punchier sounds. The detuning operates in a similar way and unison will produce a static non-phasing wave. Mode I is a pure square wave, Mode II is a 33% pulse wave and Mode III is a pulse wave heavily overdriven to produce even greater harmonic overtones and thicker detune artefacts.

### Wave 3 - Tonewheel Organ

Tonewheel Organ is a blend of pure sine waves in 3 different classic drawbar combinations. Furthermore the tonewheels are rigged as three oscillators that can be in unison or detuned 5ths or octaves apart. So it's kind of an organ on top of an organ on top of another organ. A simple tweak of the detune control at unison sounds like a Leslie speaker speeding up and slowing down, a further tweak introduces 2<sup>2/3</sup> drawbars and further still 8" and 2" drawbars. And in-between? Uncharted sonic territory.

*Tip: If you want a key click on your organ sound, turn the Decay/Sustain control past 12 o'clock and set Release to 0. Add a bit of EnvDepth and resonance to the filter.*

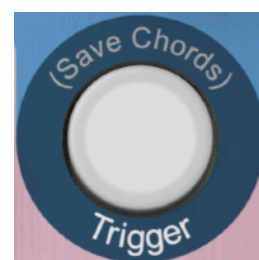
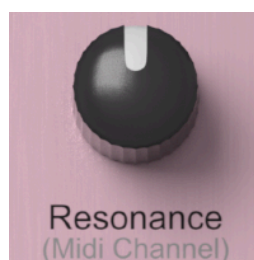
### Mode

Switches between Mode I, Mode II and Mode III. The effect depends on the oscillator wave selected above.

### Shift

Shift is used to access alternative functions on Poly Cinematic, of which there are deliberately very few, such is our strict policy against hidden functions and confusing interfaces. In the oscillator section it controls fine tuning in combination with the Pitch knob. Holding down shift and turning Pitch will fine tune  $\pm 50$  cents and will store that in permanent memory. Poly Cinematic is otherwise set to a very accurate concert pitch.

The midi channel can also be set by holding Shift and Resonance, values range from Omni (all channels) through from 1 to 16. Shift and Trigger can be used to permanently save the 8 chord memories.





## Output Section

### FX - Reverb

No pad sound is complete without being soaked overnight in a 24bit stereo reverb. Just one knob controls both the amount of reverb and the decay time of the reverb. Small values introduce a light room effect, increasing to a hall all the way to a large cathedral mixed in equally with the original sound.



## External Input Jacks

### Midi In

TRS Type-A midi input. Use the lead supplied to connect to a midi keyboard or any other chord generating device that uses midi.

### Trigger

Gate input with same functionality as the Trigger button.

### Filt Freq

CV control of the filter cut-off frequency.

### Chord Select

CV control to select one of the 8 chords stored in memory. The voltage at this input denotes which chord memory will be used to save to or play from the module.

### V/Oct

1 volt per octave CV control of the unit. This affects the pitch of all 8 voices at once and can be connected to an LFO or a generator of note pitches such as an analogue CV sequencer.

## General

### Chord Memory and CV Patching

The chord memory is the most powerful feature of Poly Cinematic as it represents the missing link between Midi and CV/Gate. Without connecting Midi, a factory fresh (see Factory Reset) Poly Cinematic will play a single note when you either press the Trigger button or send a gate signal to Trigger in, it will continue to play until you release the button or the gate signal drops (technically not a trigger I suppose). If you connect via Midi and play it, the chord memory will continuously keep the last note/chord you played in memory and assign it to the button, unless the gate/trigger is being pressed. So beware of erasing over the last wonder chord you played, but read on and find out how you can store more chords. Connect CV to the Osc Freq input and you can play your chord or single note or 8 note octave stack using a CV sequencer or keyboard, so you could think of your Poly Cinematic like a regular monophonic oscillator module with midi addressable chords.

Connect a CV into the Chord Select input and you can choose different memory slots to record chords into, 8 in total. It can be quite tricky to manage but once you get it, its a fun compositional tool that just keeps on giving. If you like what you've programmed into the chord memory, and you've remembered not to play any Midi over them, you can save them to persistent memory by holding down Shift and Trigger together and despite what happens later, your chord set will return when you power cycle the unit.

### Selecting Chords

Chord memories can be accessed using modulation shell settings (midi) or a voltage signal in the Chord Select jack (CV). This applies to both playback and recording through midi.

### Adaptive Micro-tuning

Unlike almost every other digital synth ever, Poly Cinematic features adaptive micro-tuning. What does this mean? Well it means that the notes played on the Poly Cinematic are not *always* perfectly in tune, unlike with the Equal Temperament. Instead Poly Cinematic listens to notes already being played and sometimes flattens the pitch slightly by about 3 cents. Its untraceable because it only happens on chords and not on single notes, its also adaptable so it doesn't matter what key you are playing in and it sounds so natural and warm we left it switched on forever because without it... well it just doesn't sound as natural and warm.

### Setting The Midi Channel

To set a midi channel hold down Shift and turn the resonance knob. Midi channels are mapped to the knob as follows: Knob set at zero - omni mode (all midi channels received) as you turn the knob channels 1 through 16 can be selected. If you are troubleshooting your midi connection, best to set it to omni mode (factory default) until you here something playing, then tune into the unique midi channel using Shift and Resonance knob.

### Factory Reset

To return the unit to its original factory settings: While powering up the unit, hold down Shift for 1 second. The Trigger button will flash twice and the chord memories will be reset to factory chords/notes, Fine Tune is reset to concert pitch and the midi channel will be set to Omni (all channels).

**Midi System Exclusive**

Poly Cinematic can receive sysex messages over midi to allow chords to be programmed to the memory slots without the need for a keyboard and without audibly playing back the notes.

**Stereo**

Poly Cinematic has a stereo output because it has a 24bit stereo reverb built in. The unit can still be used in a mono signal chain using either the Left or Right output alone.

**Installation**

Poly Cinematic requires a -12v/+12v eurorack power source and draws 80mA. When the unit is powered up correctly the Trigger button will glow slightly.

**Trouble Shooting**

If there is no sound at the outputs:

- Disconnect all cv and gate inputs.
- Check there is power going to the unit, the Trigger button should be dimly lit when the unit is correctly powered up.
- Press the Trigger button to test for a sound, the button should light up brightly when a note is sounded.
- Check that the filter isn't blocking the sound, set to Notch mode.
- Check the envelope Attack isn't too long or the Decay isn't too short.
- Check for sound with a simple set of 3.5mm headphones to rule out other output chain issues.
- If none of the above work, Perform a factory reset (see above) and press the Trigger button again.

**Support**

Support can be found on our website at <https://www.knobula.com/forum>. Or email [support@knobula.com](mailto:support@knobula.com).

