

KNOBULA

Chord Pilot

Instruction Manual



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Introduction

Chord Pilot is a midi controller for discovering and generating chords, it is aimed at all types of music creators working at any level of musicianship or technical ability. It is designed to provide a novel way of playing music and a convenient way of reproducing chords on demand.

The fundamental principle behind Chord Pilot is that of an imaginary pair of hands that can be manipulated into various finger positions which are then used to play notes on a virtual keyboard. The end result is stacks of unusual chords and arpeggios that are otherwise impossible to describe in traditional chord notation and even harder to play with human hands.

You won't find any controls for key signature, major Dorian 7th diminished or inversions. This is about experimentation, discovery and happy accidents. So don't be put off if some of the Pilots chords are a bit discordant or 'jazzy' at first, because as you get to know the device you'll start to discover sweet spots that resonate with your own musical tastes, or you might be inspired to try new musical directions all together. Whatever you do come up with can be stored into one of 192 different chord presets which can be recalled quickly and conveniently

either by hand or by CV/Gate control as single chords, chord progressions, arpeggiated midi sequences, rhythmic stabs or simply dumped into one of our polyphonic synth modules for use later on.

So cast aside everything you've ever been taught about music theory or harmony and strap yourself in, tune out, and let the Chord Pilot take you for an exploratory trip into a wild, wonderful, uncharted universe of sonic discovery.

Getting Started

Power

Connect the unit to a standard Eurorack +/- 12v power supply using the ribbon cable provided.

Midi

Connect the Midi Out of the unit to the Midi In of any midi synthesiser. A stereo trs to trs cable is provided for connecting to Knobula synth modules such as Poly Cinematic or any synth that uses the trs-A standard. By default Chords are output on midi channel one.

Playing Chords

Press the Audition button to preview a chord. The audition button plays a chord according to the current settings of the knobs and switches on the front panel. With the Buttons switch set to 'Play', previously saved chords can be played from the 8 illuminated Preset Buttons that surround the audition button. With the audition button held down, try changing some of the knob settings, the chord will update as settings are changed and you can begin to experiment with different parameters.

CV Gate Connections

Connecting a gate signal to gate input allows you to automate Chord Pilot by triggering the device from other modules. A control voltage connected to the Buttons input can select different chord presets, different modal settings or circle settings. A control voltage can be connected to the Bias input for creating variations of chords.

Knobs

All knob settings are saved as part of a preset except for the Strum setting which is always live.

Interval

Sets the distance between each finger in the chord. Lower values around 1,2 or 3 produce more manageable results.

Bias

Changes how evenly distributed the note intervals are across the chord. Turning Bias to the right spreads fingers apart more towards the top of the chord and turning to the left spreads them apart more towards the lower end. With the control in the centre the notes are all evenly spaced apart according to the interval setting.

Note Count

Sets the number of notes in a chord. 3 or 4 is a good number to start with. Higher numbers, up to 8 notes, can be achieved for more epic sounds but at a higher risk of sounding discordant.

Bass Note

Steals a note from your chord and places it in the octave below. Turn the knob to select which note is chosen to play in the bass octave. With the knob turned fully to the left it has no effect and all notes are left where they were.

Modal

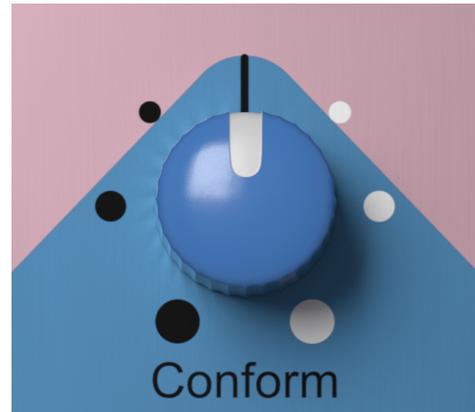
Shifts the whole chord shape up or down the virtual keyboard. This is not the same as transposing the pitch of the chord because the pitch relationships between keys on our 'keyboard' are first modified with a 'scale' and are not necessarily equal intervals, furthermore, notes can also wrap around to the octave as we shift, keeping notes bunched together. Modal is also available to access live on the buttons using the button switch.

Circle

Transposes the chord up or down by a fifth or by any other customisable amount. Circle variations are accessible live using the preset buttons when the button selector switch is set to circle.

Conform

Conform takes the chord shape you've created and conforms it to a 'scale' of notes. Turn the control to the right for more pleasant sounding major scales, turn to the left for darker, more minor sounding notes, and turn towards the centre to make notes become progressively straighter and harmonious. Forcing notes to play within a restricted scale may sometimes incur duplicated notes which will be disregarded by Chord Pilot's algorithm, or notes may be pushed an octave up or down as the algorithm automatically inverts a chord. This will depend on the complexity of the generated chord and the scale it is conformed to.



Strum

Chord Pilot can strum chords like a harp or a guitar, use this control to set the speed of the function. The strum mode is set by the [Gate switch](#). When the Gate switch is set to Orbit this control sets the number of chords in the chord progression, when set to Arpeggio the strum control acts as a speed control for the internal clock. If an external gate or clock is connected then the strum control acts as a selector switch for Arpeggio types.

Gate Switch	Strum Knob Function	Strum Knob Function	Knob Values
	<i>Internal Clock</i>	<i>External Gate In</i>	
Chord	Strum Speed	Strum Speed	Off - 4Hz
Orbit	Sequence Length	Sequence Length	
Arpeggio	Arpeggio tempo	Arpeggio Type	up & down, up only, down only, random1, random2, random3,random4.

Toggle Switches

Gate Switch

Chord

Pressing an Audition or Preset button plays the chord for as long as the button is pressed. When a gate signal is patched to the Gate input it will play the last chord played whether auditioned or as a chord preset.

Orbit

Orbit plays each chord button in a sequence, starting with the first button you press and continuously orbiting the audition star in a clockwise direction according to the internal clock speed set in Arpeggio mode, or on every gate signal detected at the gate input. The Strum knob can be used to adjust the sequence length from 1 to 8. When a gate signal is patched into the Gate input the chord will play only when a gate signal is detected, each time a chord button is pressed it will reset the sequence to that chord.

Arpeggio

Pressing a Preset Button will play the chord as an arpeggio, playing each note in sequence, with the speed set by the Strum knob. When a gate signal is patched into the Gate input the arpeggio steps through each note with each gate detected, the Strum knob in this instance selects between different arpeggio styles.

Buttons Switch

The Button switch determines the function of the preset buttons and the Buttons Input cv control.

Modal

Play chords using the Preset Buttons with each button representing a different mode as found on the modal knob. A control voltage at the buttons input will select between different modal positions.

Circle

Audition chords using the Preset Buttons with each button representing a different transposition from the Circle knob. A control voltage at the buttons input will select between Circle values.

Preset

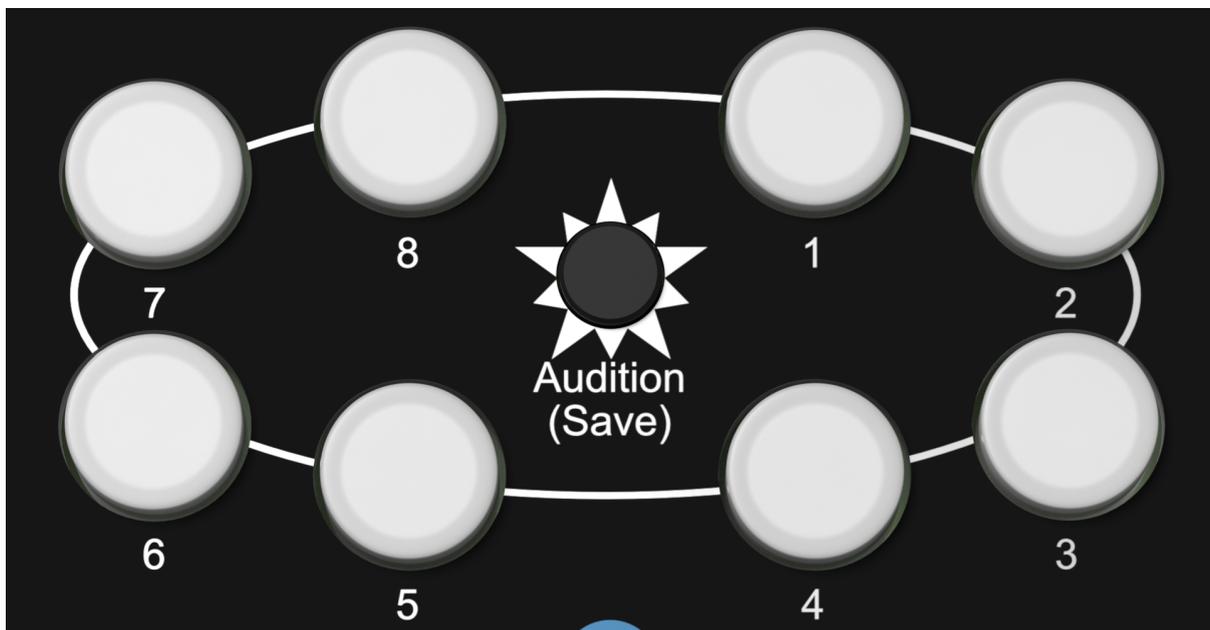
Illuminated buttons play stored presets. A control voltage at the buttons input will select between different presets when a Gate signal is detected. A control voltage at the Buttons input will select between different chord banks.

Bank Set Switch

A | B | C

Chord Pilot can store a total of 192 unique chords into memory presets. Presets are stored in 3 sets of 64 chords, each set can be quickly selected using this toggle switch. Within each set there are 8 banks of 8 chords, a bank can be selected by holding the bank/dump button and pressing one of the 8 preset buttons.

Push Buttons



Preset Buttons 1-8

These 8 illuminated push buttons orbit the Audition button and are performance orientated to give you instant recall of stored presets or modal/circle variations of the chord settings on the panel. The buttons can also be selected over CV through the Buttons input. Use the [Buttons switch](#) to select the preferred function of the preset buttons.

Audition (Save)

This little button is at the very centre of the Chord Pilot experience. Pressing it will play a chord using whichever settings are live on the controls, and keeping it held down will update the chord as parameters are changed.

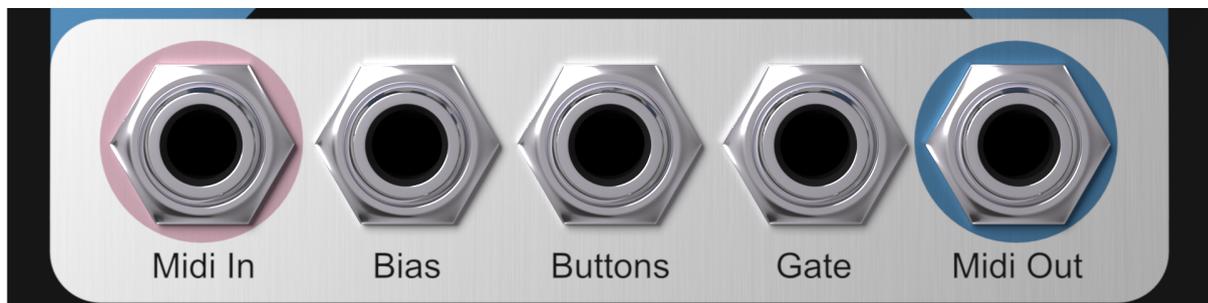
To save a chord, hold this button down and select a Preset Button as a destination for your chord to be saved into.

Bank

To change the active bank for playback and loading/saving, hold down the Bank button and select a Preset Button from 1-8, representing the 8 banks. There are 3 sets of 8 banks in Chord Pilot accessible using the 3 way [Bank Select switch](#), each bank contains 8 chords making a total of 192 chord memories.

To transfer the current bank of 8 chords to a Knobula synthesiser such as Poly Cinematic, press and hold the the Bank button whilst also pressing Audition(Save) until all the Preset Buttons flash, all 8 chords in the selected bank will be transferred to the synth in a single midi system exclusive message.

Inputs and Outputs



Midi In/Thru

If you're using a keyboard or a midi sequencer with Chord Pilot you can connect the midi in here and it will be merged with Chord Pilot's own midi stream depending on the setting of the midi mode in the preferences.

Midi CC messages can be received here that can remotely control the parameters of Chord Pilot.

This input also serves as an input for loading in memory back ups over midi.

Midi Out

Connect this to any midi device using a trs type A cable. Chord Pilot will output on midi channel 1 by default.

Bias

CV control of the Bias parameter.

Buttons

CV control of the push button value. When combined with the Buttons switch you can assign the incoming control voltage to select either a chord preset, a modal value or a circle value.

Gate

A gate signal at this input will play a chord depending on the setting of the [Gate Switch](#).

Edit Mode

To enter the Edit mode hold down a Preset Button and press the Circle encoder button.

Editing Parameters of a Saved Chord Preset

First enter edit mode by holding down the Preset Button of the chord you wish to edit and pressing the Circle encoder button. The Preset Buttons will begin to flash, with each active note represented by an illuminated Preset Button, with up to 8 possible active notes. You can hear each note of the chord individually by pressing any of the active buttons and you can hear all the notes played at once as a chord by pressing the Audition button. Turning any of the knobs a few degrees will reactivate that control and allow you to change the structure of the chord. The chord can be saved back to a preset the normal way by holding down Audition (Save) and pressing a preset button destination.

Editing Individual Notes

Whilst in edit mode the Preset Buttons will each represent a note in the chord. To change a note's pitch value hold down the relevant Button and turn the Circle encoder to select a different note. Once a note is edited, its value is frozen and can not be affected by changing other parameters. To unfreeze an edited note, hold the note's button and press the encoder again.

To exit chord edit mode without saving press the encoder again. To save the edited chord, press the Audition (Save) button and select a destination button to save the edited chord to.

Preferences

To enter the Preferences mode press and hold the Bank button and press the Circle encoder knob, the Preset buttons will flash in sequence. Press a Preset Button to enter that particular preference and turn the Circle encoder to change the value. Press the encoder once again to store that value and exit the Preferences mode.

Preference values are displayed using the 8 buttons as indicators ; values 1-8 are shown by illuminating each button 1-8 respectively and values 9-16 are shown by illuminating all buttons except one where 9 is button 1 darkened, 10 is button 2 darkened etc.

Circle Transpose

Preset Button 1

Use the encoder to increase or decrease the step value that the Circle increments by. Default value is 7 which is a musical fifth.

Midi Channel

Preset Button 2

Select a midi channel to transmit and receive all midi data on, default is midi channel 1.

Midi in Mode

Preset button 3

Choose between different midi functionality when using an external midi controller or keyboard.

1. Chord Control Input (default)

Playing a key between C2 and C4 plays the last chord, transposed up to an octave up or down with C3 (middle C) being the original pitch. The midi channel is set by the midi preference setting. All other channels behave as midi thru.

White notes from A1 to B2 represent the Audition button and the the 8 Preset Buttons

2. Midi Thru Only

Midi thru on all channels only.

Button Hold

Preset Button 4

Sets the operating style of the Audition and Preset buttons. By default Button Hold is set to Off which means the unit will play when the button is pressed and stop playing when the button is released. When set to On the unit will play continuously until the same button or any other button is pressed again. If a Patch cable is connected to the Gate input with Button Hold On, the unit will not play at all when a button is pressed but only when a Gate signal is also detected, this allows you to 'silently' select a preset to be triggered only at a specific time.

Backup and Restore

Preset Button 5

1. Back Up

Saves all data including 192 chords and current Preferences as midi system exclusive data. Press the Bank button to initiate the process.

2. Restore

Load all data including 192 chords and Preferences via midi in. Pressing button 5 will prepare Chord Pilot to receive the restored data via the midi in socket.

Knob Edit Activation

Preset Button 6

Sets the operating style of the knobs when editing presets. When recalling presets onto the front panel you can select the way Chord Pilot activates knobs and reads their values.

1.Movement

When knob movement is detected by a few degrees the knob becomes active and that value is read.

2.Matching

When the knob is turned it is only activated when it's position matches the stored preset value.

Cheat Sheet

Function	Action 1	Action 2
chord edit mode	Hold down a preset button and press the Circle encoder knob at the same time	press a preset button to select which note to edit chromatically with the encoder
preferences	push bank and circle encoder button simultaneously	press preset button to enter specific preference Use encoder to change value and press to save/exit
midi bank dump	Push Bank and Audition simultaneously	
Octave adjust	Push and turn Circle encoder	