OP-1

PORTABLE SYNTHESIZER
SYNTHÉTISEUR PORTABLE
TASCHEN-SYNTHESIZER
小型シンセサイザー

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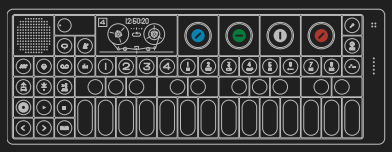


Introduction

OP-1 Operators Manual

運営マニュアル

Benutzer Handbuch
Opérateurs Manuel

VERSION 1.0

Contents

Introduction / Quick Start

Dear user,

Thank you for choosing the OP-1 musical instrument. This device is precision made to last many years and designed to be practical, intuitive and to give you hours of creative pleasure. To get the most out of your new OP-1, be sure to read this operators manual carefully. For even deeper understanding and the latest pro tips, please visit the OP-1 users website.

-Teenage Engineering

About this manual

This manual is written more or less with one chapter for every key you find on your OP-1 (Except the musical keyboard which is counted as one).
You create sounds (Synthesizer or Drum Mode keys) that you may Sequence before you record to TAPE and finally MIX. You also have the option to print a final mix to ALBUM.

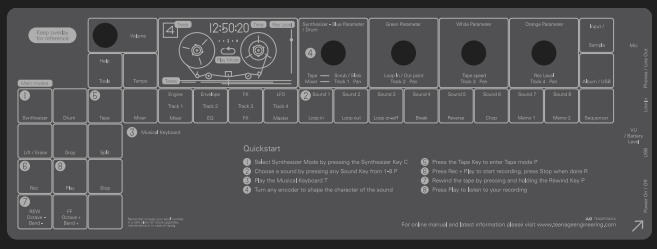
To make things easier, all keys, encoders and important modes that are relevant to the current page are marked on the OP-1 illustration in the header.

Although the OP-1 is designed to be totally intuitive, reading this manual will give you deeper understanding of the concept behind many of OP-1's functions and modes. Anyway, don't be afraid to just play around and explore, you can always come back to this manual at a later stage.

What's in the Box?

Check that the following items are included when you open the box: OP-1 Unit, USB Cable, Quick guide Overlay and a Set of rubber bands.

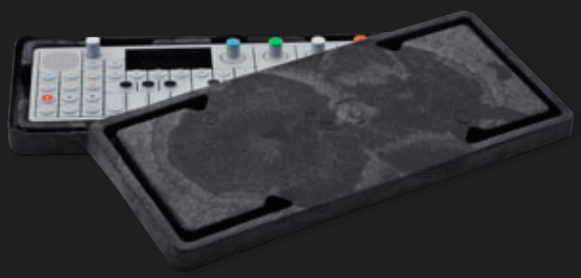
Quick Guide Overlay



OP-1 comes with a transparent overlay for quick reference of the keyboard layout. Keep this for future reference.

Rubber bands

You may use the PaperFoam box in which your OP-1 came delivered as a temporary storage box. Use the rubber bands to seal the box.



USB Cable

The included cable is a standard USB to mini USB cable for charging the OP-1 and to transfer data between your OP-1 and your computer.

If you want to use an external power adaptor instead of a computer to charge the battery, make sure it's a 5V USB standard charger. A dedicated charger works more efficiently and charges the battery quickly.

OP-1

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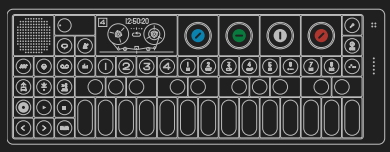


Quick guide

Power on

Make sure that your OP-1 is fully charged. If not, insert the USB cable into the USB port located on the short right side of your OP-1 and connect it to a computer or a USB power adaptor.

Turn on your OP-1 by sliding the white power switch located on the short right side of the unit towards you. The Teenage Engineering symbol will be displayed briefly on the screen.
Turn up the volume by turning the white knob located on the left side of the screen clockwise.
3. You are now ready to play your new instrument.

Play a synthesizer sound

Press the Synthesizer key.
Select a synthesizer sound by pressing any key from 1-8. (These keys are called Sound selection keys 1-8 in this manual.)
Press any key on the Musical Keyboard.

Play a drum sound

Press the Drum key.
Select a drum sound by pressing any key from 1-8.
Press any key on the Musical Keyboard.

Recording to tape

Press the TAPE key.
Select TRACK by pressing any of the 1-4 keys located under the screen. (These keys are called T1-T4 in this manual)
Press REC + PLAY to start rolling the tape.

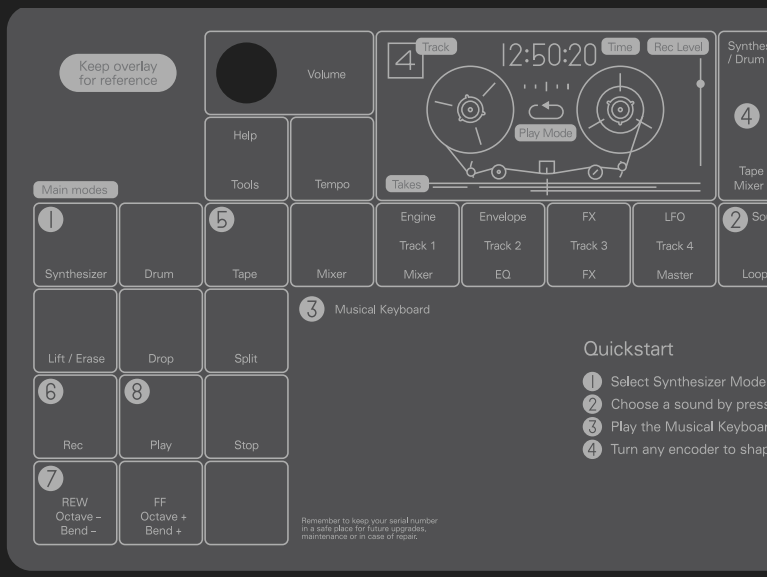
Play the MUSICAL KEYBOARD.
Press the STOP key to stop recording. Rewind to the starting point by pressing and holding the REWIND key. Now press PLAY to listen to your recording.

Using the mixer

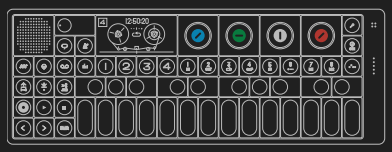
First make sure that you have some recorded material on the tape.

Press the MIXER key.
Now press the PLAY key to start playing the tape.
Depending on which track that contains recorded material, the related VU meter will indicate the sound level.
Adjust the individual track level by turning the color related knob.
Hold down the SHIFT key while turning the color related knob to adjust the PAN for each track.

Congratulations! You have learned the basic fundamentals of your OP-1. To understand all of your OP-1's functions, please read this operators manual carefully.

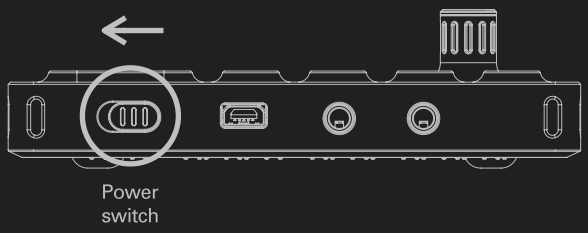


A good way to start is to follow the Quick guide printed on the plastic overlay that your OP-1 comes with.



1.1 Power On / Off

To power on your OP-1, slide the white power switch located on the right side of the device towards you. The display will light up and the OP-1 loads necessary system data.



To power off, slide the power switch upwards. Data is always stored on-the-fly, so you don't have to worry about saving your sound or recordings.

Everything will still be there the next time you power on your OP-1 exactly the same as when you left it.

NOTE: The more samples or other data you store on your OP-1, the longer the start-up process will be. It's a good habit both for start-up time and for safety to back-up and clear your OP-1 occasionally.

1.2 Charging the Battery

The first thing you should do is to connect your OP-1 to a computer (or optional charger) via the USB port located on the short right side of the unit. Make sure to keep your OP-1 connected until you have fully charged the internal battery. This will be indicated by the same LED's as used for the VU meter.

To check the battery level, press the Help key. The LED's will light up to indicate the level. Five lit LED's is equal to a fully charged battery.

1.3 In and Outputs

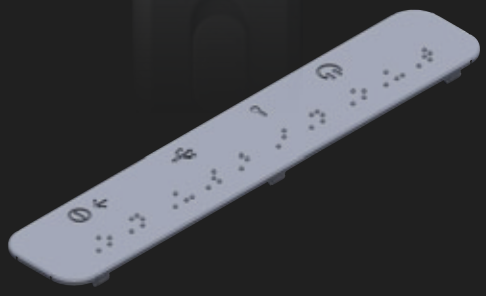
OP-1 has three ports located on the short right hand side of the unit.

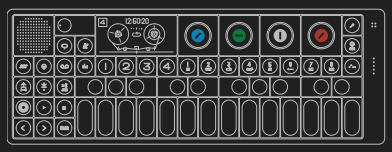
- Audio in / Line in
- Audio out for headphones / line out
- USB port for charging and transferring files

NOTE: To adjust the input level press SHIFT + Mic key. To adjust the output level, turn the volume knob or set the master L / R level output located in mixer T4.

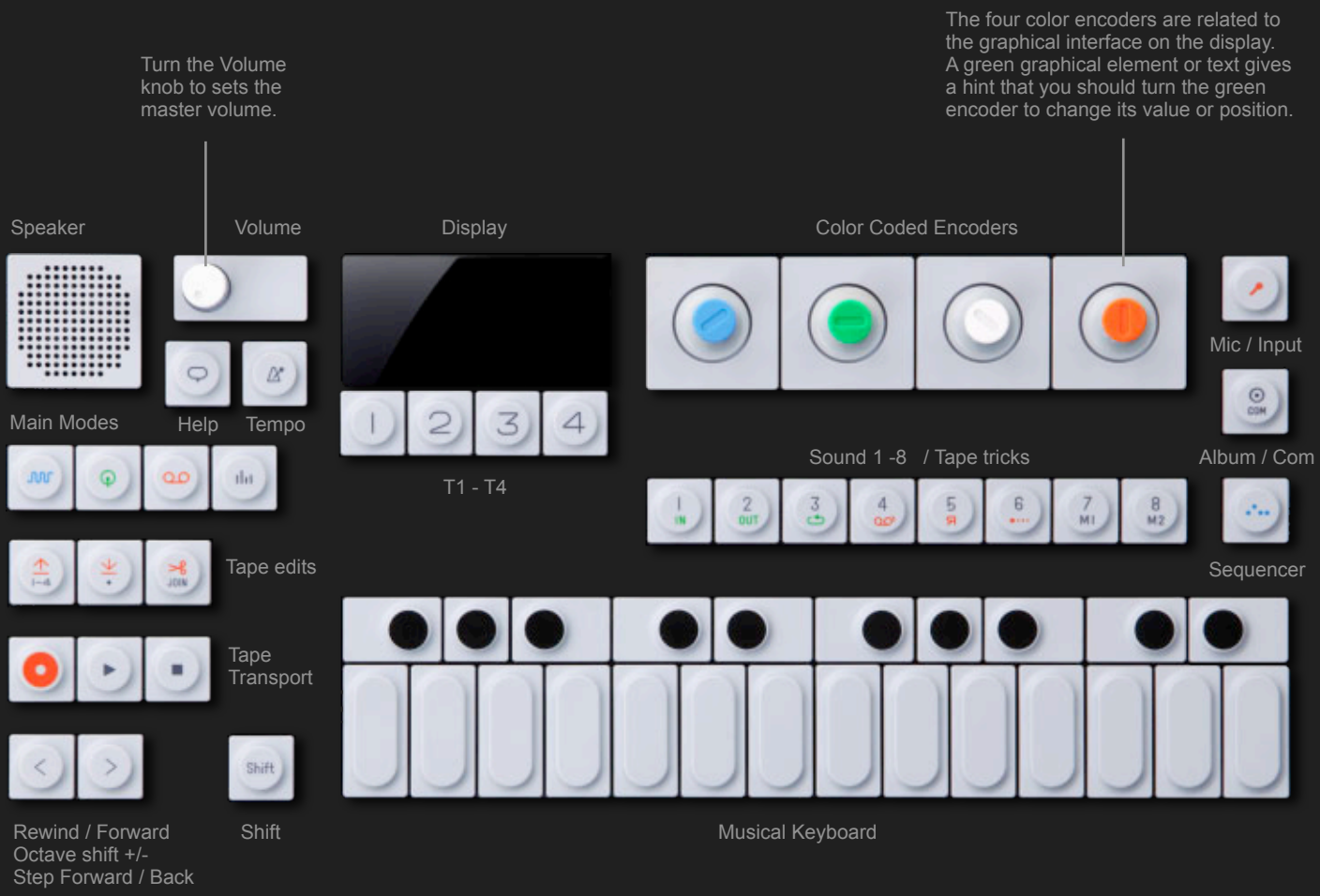
1. 4 OP-1 Side view

If you turn your OP-1 upside down, you will find symbols and braille text that indicates I/O location.

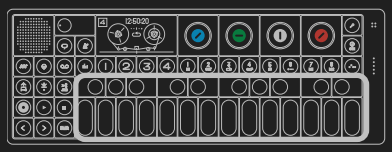




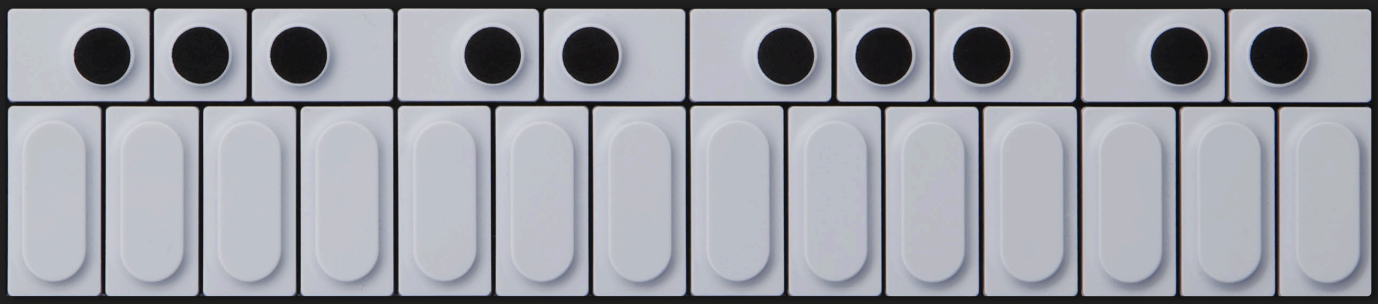
2.1 The layout of the OP-1 is divided into different groups for easy reading and intuitive workflow.



2.2 On the right side of your OP-1 you find the built in Microphone and VU / Battery LED's:



3.1 Playing a Sound



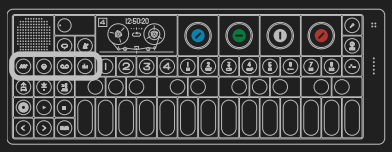
Press any key on the musical keyboard and you should instantly hear a sound. If it is silent, turn up the master volume located next to the speaker. Or press the Synthesizer or Drum key.

PRO-TIP: Press and hold HELP while playing the musical keyboard to let your OP-1 display the current note.

3.2 Octave shift

Use the Arrow keys to transpose octave while in Synthesizer or Drum mode.

NOTE: Before you start to create your first masterpiece, read this manual carefully to avoid deleting or over-recording your work.



4.1 The Four Main Modes

Your OP-1 is designed to be easy to use, so the most important functions are located on the first keys to the left on the upper row. The four keys are grouped together and are called Main Modes:

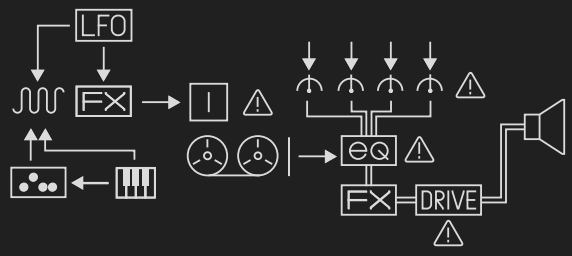
The four main modes are: Synthesizer, Drum, Tape and Mixer. Each key has a dedicated symbol and color to make it easy to navigate through the different screens and to find the appropriate key related to the active mode.

Example: All keys with orange symbols are related to the Tape because the tape symbol is orange.

4.2 Using SHIFT + any Main mode key

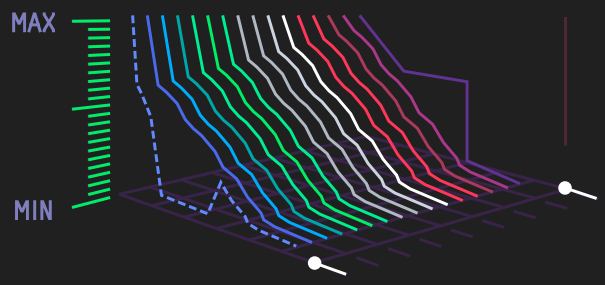
By pressing SHIFT + a Mode key you invoke special settings or functions for that mode.
For Synthesizer and Drum you enter the sound Preset Browser. For tape you enter Tape erase function.

And for Mixer you enter the Signal Flow screen. See dedicated section for in-depth descriptions of Tape erase and Signal Flow.

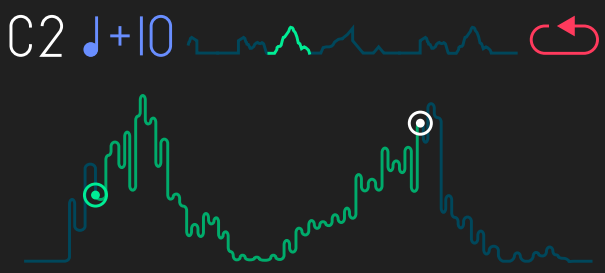


4.2 Main Modes Screen examples

Synthesizer – String Engine

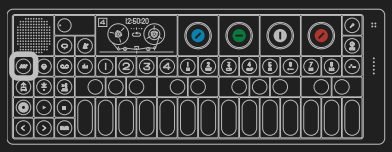


Drum



Tape

Mixer



5.1 Synthesizer Mode – Introduction

OP-1 has several original synthesizer engines. Each one has its own personality. The synthesizer engine is always located under T1 and is also the first screen that will show up when you change or select a sound.

A sound is built up from four modules located under the T1, T2, T3 and T4 keys found just under the display:

NOTE: The T1-T4 are soft keys, which means that in Synthesizer and Drum mode they function as described here. In Tape mode they are track keys T1-T4 and in Mixer Mode they are Mixer (T1), EQ (T2), Master Effect (T3) and Master Out / Drive (T4).

To enter Synthesizer Mode, press the key with the blue wave symbol on it. This enables both T1-T4 and sound selection keys 1-8.
When you have pressed the Synthesizer key, first select a sound from 1-8 with the Sound keys:

Then use T1-T4 keys to shape the sound:

T1 – Synthesizer engine
T2 – Envelope
T3 – Effect
T4 – LFO / G-force

Here follows a description of how a Sound is built up. For an in-depth description of all individual Synthesizer engines, the Envelope, Effects and LFO, please refer to reference chapter.

5.2 Synthesizer Engines

The first module of a sound is its engine. This is the heart of the sound and is the most important part.

It is possible to change an engine of a sound but keep the Envelope, the Effect and the LFO or G- force setting.

To do this, first select the Sound you want to change. Then use the T1 to T4 keys to select a specific module.

To change the Engine press SHIFT + T1. This opens the Browser screen, with the list of possible Engine choices:

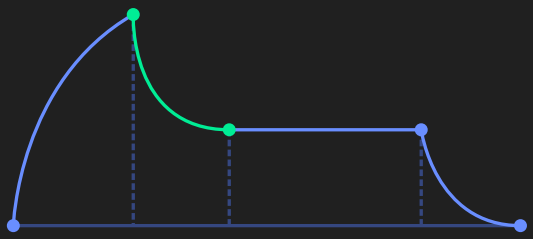
FM – Frequency Modulation synthesis made easy. This is the type of engine that is found in the classic DX7 synthesizer.
Cluster – Up to six oscillators chained in a cluster.
Dr Wave – Raw 8-bit style engine.
Digital – Pure digital raw engine.
String – Physical modeling of a string instrument.
Pulse – Square wave engine.
Phase – Phase distortion type engine.

Use the Blue encoder to scroll through the list and press T1 when your choice is highlighted to exit.

To learn more about the different Synthesizer engines parameters, see the Reference chapter.

5.3 Envelope

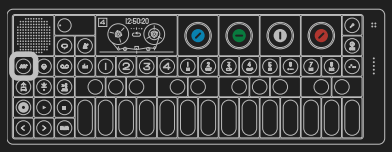
To shape the envelope, press the T2 key. The envelope controls the amplification of a sound and is triggered when a note is played. You can control the attack, decay, sustain and release. This is called an ADSR envelope.



Use the four color encoders to shape the Envelope.

Blue – Attack, Green – Decay. White – Sustain.
Orange – Release

This will be indicated by a color change in the graphical interface as soon as an encoder is turned.

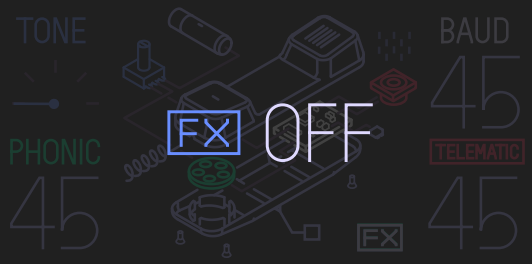


5.4 Play Mode

To enter Play mode press SHIFT while you are in the Envelope screen which is located under the T2 key. In play mode, you can select if you want your sound to be Polyphonic, Monophonic, Legato or Unison.
In play mode, you also have the portamento parameter setting.

5.5 Synthesizer Effect

To add an effect to a sound, press the T3 key. You may toggle an effect on and off by pressing the T3 key a second time.



To change effect, press SHIFT + T3. This enters the effect browser screen. Use the Blue encoder to scroll through the list and press T2 to make your selection.

For a detailed description of the effects see the effects chapter.

5.6 Synthesizer LFO

The LFO lets you modulate any Synthesizer Engine, Envelope or Effect parameters.

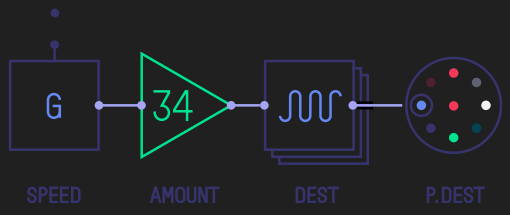
To add an LFO to a sound, press the T4 key. You may toggle an LFO on and off by pressing the T4 key a second time.

To change LFO, press SHIFT + T4. This opens the Browser screen, with the list of possible LFO's:

ELEMENT – let's you use external elements like the built in Microphone, Line in, G-force sensor or FM Radio to modulate a sound. Select the element, amount, destination (engine, envelope or effect) and the destination parameter.
RANDOM – randomize all parameters in a module. Set the speed, amount, LFO envelope and destination (engine, envelope or effect).
TREMOLO – Let you create different types of vibrato effects to your sound by modulating the pitch and volume. Set the speed, pitch amount, volume amount and LFO envelope curve. The envelope curve applies an attack or decay curve to the speed of the LFO.
VALUE – Use this classic LFO type to change one parameter only. Set amount, speed, destination and parameter.

NOTE: Turn the ENCODERS all the way for all options under, for example, destination. The encoder have a click, but that is not to be mistaken for turning just a click to change a value. Sometimes you need to turn a couple of clicks to change a value.

Example: ELEMENT LFO

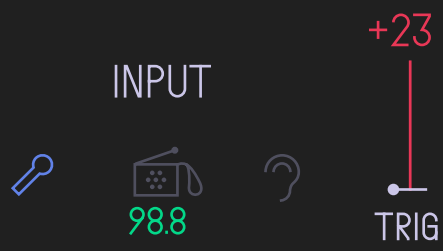


As described earlier the Element LFO uses different external elements to control any parameter of a Synthesizer engine, Envelope or Effect. Use the Blue encoder to select your source. The options are:

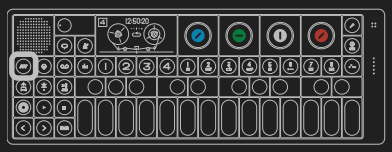
A) G-force

B) Mic / Line / Radio

Option A is straightforward and you don't need to make any further settings. When selecting option B, you need to select the input source. Press SHIFT + Input key to select input and to adjust the gain. If Radio is selected, here you may tune in to a radio station to get satisfactory results.

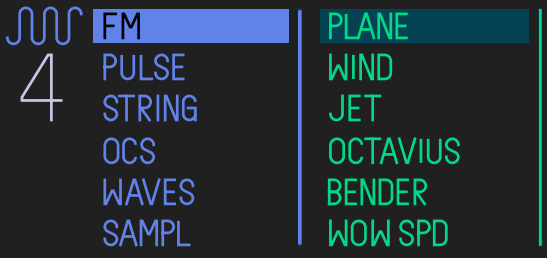


For more information about LFO's please refer to the LFO reference section of this manual.



5.7 Change Sound

Consider sound selection keys 1-8 as your instant access keys. To change any of sound 1-8 presets, press SHIFT + any key from 1 to 8 and a list of all available sound presets is shown. Select a preset by turning the Blue encoder for Engine type and Green Encoder for Preset choices.



NOTE: The difference between changing just a Synthesizer Engine (SHIFT + T1) and a Sound (SHIFT + 1-8) is that the later changes all four T1- T4 settings.

5.8 Saving a Sound

To save a sound, you have two options:

A) DUMP TO TAPE – Use the LIFT key while in Synthesizer or Drum mode. Then switch to Tape, locate empty space on the tape and press the DROP key. The sound will now be converted to sound-data. To recall a sound that was dumped to Tape, press LIFT, switch to Synthesizer or Drum and press DROP.

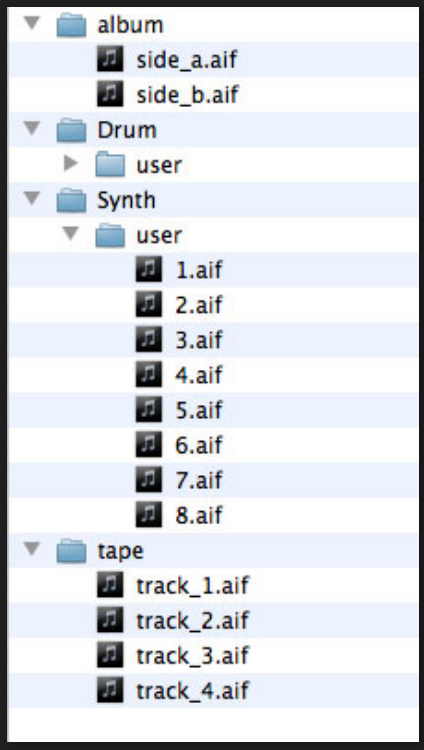
B) SAVE SOUND 1-8 – Tweak your sound on any of the sound slots from 1-8. Then hold down the current sound key for five seconds. Connect your OP-1 to a computer using the USB cable. Sounds 1-8 are located in the USER FOLDER located inside Synth and Drum folders. Drag the sound you want to save to your desktop and rename it, or rename the sound inside the folder. Keep in mind using names with a maximum of ten characters. Avoid uncommon symbols.

PRO-TIP: You may create your own folder and place it in either Synth or Drum folder to organize your files.

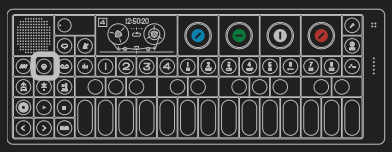
5.9 Sound File structure

When you connect your OP-1 to your computer and press SHIFT + COM key and select DISK mode the OP-1 shows up on your desktop:

Double click the disk icon to reveal the internal OP-1 files. All Sounds, Album recordings and Tape Tracks show up as .aif files.



NOTE: Sound presets use a special OP-1 version of the .aif format, which includes BOTH a sound preview and synthesizer data. In other words, the OP-1 synthesizer engines are not sample based but modeled sounds.



5.1 Drum Mode – Introduction

The Drum Mode, entered by pressing the key with the green drum symbol on it is very similar to the synthesizer mode except it is specially designed for shorter drum / percussion sounds. It relies heavily on the dedicated Drum sampler as its engine.

As with Synthesizer mode, pressing the Drum key enables both T1-T4 and Sound selection keys 1-8.

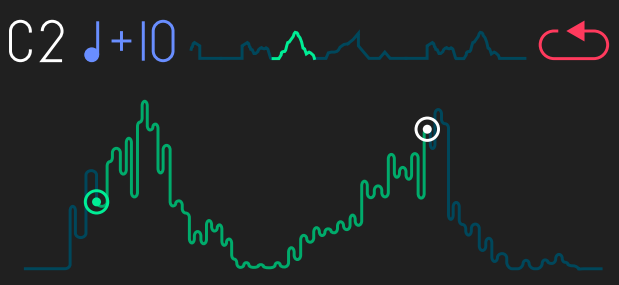
When you have pressed the Drum key, first select a sound (drum-kit) from 1-8 with the Sound keys.

Then use T1-T4 keys to shape the sound:

T1 – Sampler engine
T2 – Dynamic Envelope
T3 – Effect
T4 – LFO / G-force

5.2 Drum Sampler Engine

The difference compared to the Synthesizer sampler engine is that the Drum sampler has 12 seconds of recording time (vs. 6 seconds in the Synthesizer sampler) and has a layout function so you can lay out parts of the sampling to dedicated keys on the musical keyboard (compared to pitch of the sound when playing the musical keyboard using the synthesizer sampler).



The basic concept here is to record all drums in a row and keep that recording to 12 seconds. Then set in and out points of that recording and dedicate it to a certain key on the musical keyboard.

5.3 Laying out a Drum Kit

To layout a Drum Kit, press any key on the musical keyboard and start to set the In point of the sound. This can be anywhere on the sample. Then set the Out point and hit the same key on the musical keyboard. You should now hear the part of the sampling you have dedicated to that key.

The tools you have to set up your drum kit are:

PITCH
Set the pitch of a part by turning the Blue encoder.

DIRECTION
Press SHIFT and turn the Blue encoder to change direction of a part.

IN POINT
Set the in point by turning the Green encoder.

FINE TUNE IN POINT
Press SHIFT and turn the Green encoder to fine tune the position of the in point.

OUT POINT
Set the out point by turning the White encoder.

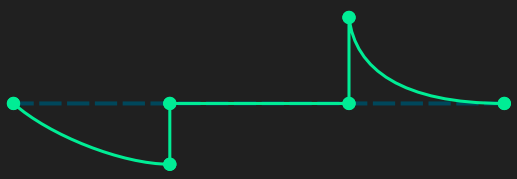
FINE TUNE OUT POINT
Press SHIFT and turn the White encoder to fine tune the position of the out point.

PLAY TO END, LOOP, PLAY ONCE
Turn the Orange encoder to set the play mode of a part.

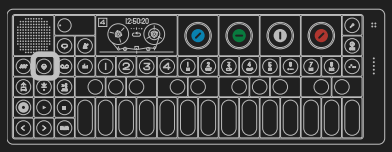
LEVEL
Press SHIFT and turn the Orange encoder to set the volume level of a part.

NOTE: Remember to always select the key on the musical keyboard where you want to change sound.

5.4 Dynamic Envelope



Dynamic Envelope is specially designed for short drum sounds. Set the attack level with Blue Encoder, Mid part level with Green Encoder, Release Level with Encoder and use the Orange Encoder to adjust the region.

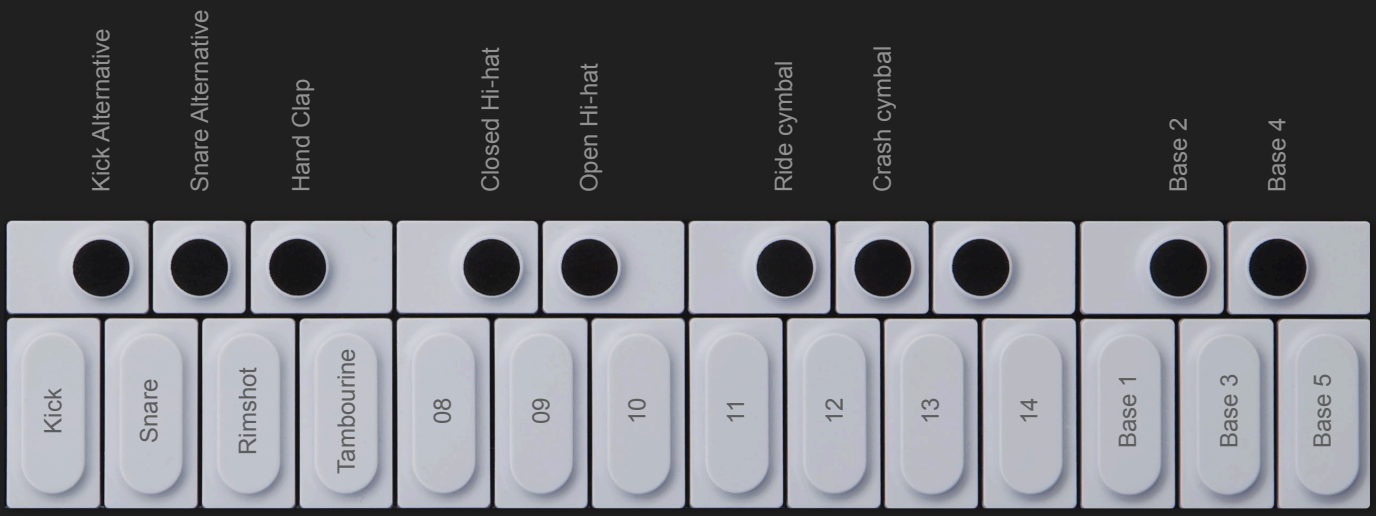


6.5 Importing your own sounds

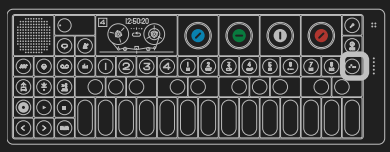
Simply create a single sound file from your selected sounds. Remember to keep the audio file maximum 12 seconds long. Then save the sound as an .aif file. And transfer the file to the User folder located inside the Drum folder. See chapter 5.8-9 how to transfer files to your OP-1.

6.6 Using OP-1 standard layout

To make sound switching between kits more logical when you have a sequence running, it's a good habit to layout your kits in the same order. The factory kits are mapped like this:



PRO-TIP: A trick to create fill-ins, is to have the same sequence running but switching between drum kit's based on the same sounds but mapped differently. You may also map some keys to silent parts of a sampling to "mute" certain sounds.



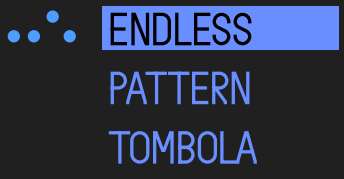
7.1 Sequencers – Introduction

OP-1 comes with 3 original sequencers that let you arrange notes in different ways. Both Synthesizer and Drum mode have its own dedicated sequencer memory and can have separate types active even though only one can be played at a time.

The big difference between the Tape and a Sequencer is that Tape is pure audio recordings, and the sequencer stores note data. The reason to use sequencers is that you may change sound but still keep playing the same stored notes.

7.2 Selecting Sequencer

To select Sequencer type press SHIFT + the sequencer key to enter the Sequencer Browser screen. Turn the Blue encoder to make your selection, then press the Sequencer key again to exit.



7.3 ENDLESS Sequencer

Endless is a very effective way to get sequencing done quickly. Just hold SHIFT + press any key on the musical keyboard to store a note. It automatically moves one step forward when you release the key. Keep holding down shift until you are done. Then release shift and press any key on the musical keyboard to play your sequence. The maximum number of notes that can be stored is 256.

7.4 Endless Functions:

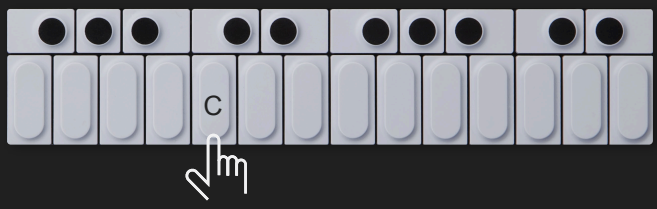
INSERT NOTES
To Insert a note, press SHIFT + any key on the musical keyboard. Keep holding down SHIFT until you are done with ALL notes you want to insert.

INSERT LONG NOTES
Press SHIFT + any key on the Musical Keyboard. Continue to hold the keys while pressing the Forward Arrow key (>).

INSERT SPACE
Press SHIFT + the Forward Arrow key (>).

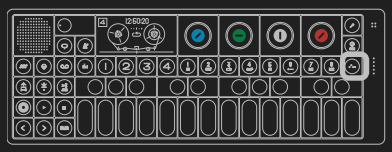
TO DELETE LAST NOTE
Press SHIFT + the Rewind Arrow key (<).

PLAY A SEQUENCE
To play a sequence just press any key on the Musical Keyboard. The pitch of the played notes will change depending on what key you press. This is called Key Transposition. To play the original pitch of the notes play the C key on the Musical Keyboard.



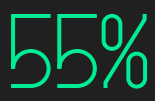
PLAY AND HOLD A SEQUENCE
Turn the Orange Encoder until HOLD lights up.

CHANGE PLAYBACK DIRECTION OF A SEQUENCE
You have three different options for how you want the notes to be played back. Forward, Reverse or Random. Change direction by holding SHIFT and turn the Orange Encoder.



SET NOTE LENGTH
Note length is basically a way to define how many notes (beats) that will be played in one bar. This is related to the Master Tempo that you set in Tempo and to the bars in Tape mode. If you set 1/16, one bar in tape will be 16 notes or beats. Change note length by turning the Blue Encoder.

SWING
Swing is a way to slightly alter the timing of notes played in a sequence. To add swing turn the Green Encoder. No swing is a 50% setting.



NOTE: Remember to check if you have applied swing when you record multiple layers of sequenced material to tape if you want them to be in absolute sync.

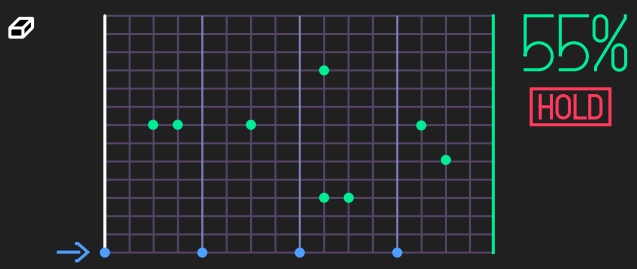
APPLY A PATTERN TO YOUR SEQUENCE
The Endless sequencer has an function let you add a pattern to your sequence. Turn the White Encoder to apply a pattern.A single dot means there's no pattern applied. (turn the White Encoder counter clockwise all the way until only a single dot is shown)

ROTATE A PATTERN
By holding SHIFT + turning the White Encoder, you can rotate the dots within the pattern.

NOTE: In Endless, you may use the arrow keys to change octave in playback mode.

7.5 PATTERN Sequencer

Pattern is a classic grid type of sequencer found in many hardware and software instruments. This is a 16 step sequencer, useful for sequencing drum patterns.



7.6 Pattern Functions

INSERT NOTES
To Insert a note press SHIFT + any key on the Musical Keyboard. Keep holding down SHIFT until you are done with ALL notes you want to insert.

ERASING NOTE
Hold down SHIFT and turn the Blue encoder.

MOVING THE VERTICAL CURSOR LINE
Press Arrow keys or turn the Blue Encoder to move the horizontal cursor line, by doing this you also select which note you want to focus on when erasing.

SWING
Swing is a way to slightly alter the timing of notes played in a sequence. To add swing turn the Green Encoder. No swing is a 50% setting

NOTE: Remember to check if you have applied swing when you record multiple layers of sequenced material to tape if you want them to be in absolute sync.

ROTATE NOTES
Press SHIFT + turn the Green Encoder to rotate all notes. This might be good when you have entered the notes in Live Mode.

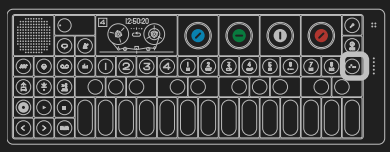
LIVE MODE
Turn the Orange Encoder until HOLD lights up. The sequencer starts, and the white horizontal cursor moves across the sequence. Press SHIFT + any key on the Musical Keyboard to insert a note at the current cursor position.

LIVE EDIT MODE
Press SHIFT + any Arrow key while the sequencer is running to break the cursor connection and let you edit the notes as you would in normal stopped mode.

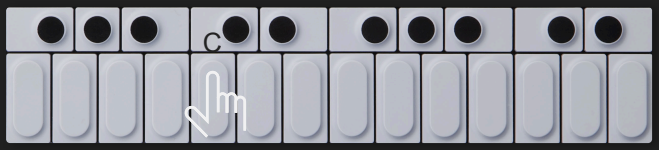
SET SEQUENCER LENGTH
Turn the White Encoder to adjust the playback length of the sequence.

MOVE SECTION
If you hold SHIFT + turn the White encoder you may move the played back section around within the sequence. Great for fill-ins!

PLAY AND HOLD A SEQUENCE
Turn the Orange Encoder until HOLD lights up.



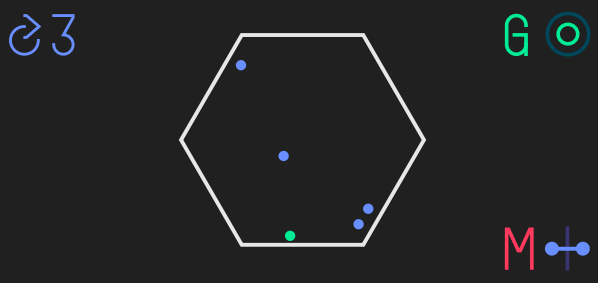
NOTE: To key transpose a Pattern sequence, switch to Synthesizer, Drum, Tape or Mixer mode and press any key on the Musical Keyboard. To play the original pitch of the sequenced notes, play the C key on the Musical Keyboard.



CHANGE PLAYBACK DIRECTION OF A SEQUENCE
You have three different options for how you want the notes to be played back. Forward, Reverse or Cycle. Change direction by holding SHIFT and turn the Orange Encoder.

7.6 TOMBOLA Sequencer

Use tombola when you want to create a random sequence. Just throw a couple of notes into the tombola and then set the gravity, mass and speed of the tombola. The harder / faster a note bounce the louder the sound will play.



7.7 Tombola functions

DROP NOTES INTO TOMBOLA
Play any key on the Musical keyboard to drop a note into the tombola.

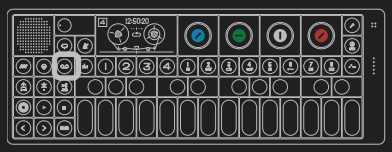
ADJUST BOUNCINESS
Turn the Orange Encoder to adjust the bounciness of the notes. The harder a note hits the wall of the the tombola the louder it will play. This is measured in amount of mass.

ADJUST HEAVINESS
This is measured in amount of Gravity. Turn the Green Encoder to set the gravity.

RELEASING NOTES
Turn the White Encoder to open the tombola and release the notes.

TOMBOLA SPEED
Turn the Blue Encoder to adjust the speed and the direction of rotation of the tombola.

PRO-TIPS: Keep the tombola open and set a high rotation speed and use Tombola as an effect on a sound. This creates a random type of echo effect.

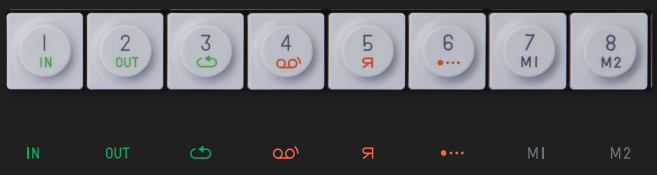


8.1 Tape – Introduction

Your OP-1 has a built in tape feature with 6 minutes recording time (in normal tape speed, 44.1 kHz / 16 bits) and 4 individual tracks.
To enter the Tape Mode press the Tape key with the orange tape symbol on it.

This mode changes the function of T1-T4 which becomes track 1-4 and Sound selection keys which becomes Tape Tricks 1-8

And Sound selection keys which becomes Tape Tricks:



8.2 Record to tape

1. Select the sound which you want to record.
2. Press the Tape key to enter Tape Mode.
3. Select a recording track by pressing any of the track keys T1-T4.
4. Set recording level with the Orange encoder. (This is also the main level for Synthesizer and Drum sounds.)
5. Press REC + Play to start recording.
6. Play the Musical Keyboard.
7. Press STOP when done.
8. Press Rewind (left arrow) to rewind the tape.
9. Press Play to listen to your recording.

8.3 Overdubbing

The Tape always overdubs if there's recorded material on the same track. To avoid overdubbing, lift any pre-recorded takes out from the tape location.

8.4 Rewind and Fast Forward

Use the arrow keys to rewind and fast forward the playback of the tape.

8.5 Jump to the start of the tape

Press STOP + Left Arrow key to jump to the very beginning of the tape.

8.6 Jump to the end of the Tape

Press STOP + Right Arrow to jump to the end of the last take on the tape.

8.7 Reverse Playback

To play the tape reverse you have two choices:

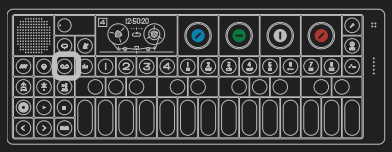
Press SHIFT + Play.
Press the Reverse Tape Tricks Key when the tape is rolling.

8.8 Recording Level

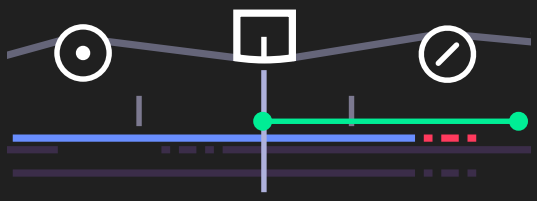
Turn the Orange encoder to set the recording level.

8.9 Tape Editing

First select the track you want to edit. Recorded material shows up as grey lines and is referred to as takes. When an active track has recorded material, the



lines turn orange. To edit a take, use Scrub, Rewind, FF or press STOP to center it under the tape head:



A take turns blue when it's in position and ready for editing or moving. These are the editing actions for an active take:

SCRUB – Use Blue encoder to scrub though the tape.

SLIDE – Use SHIFT + Blue encoder to slide a take. You may slide a take until either of its start or end point interferes with another take.

LIFT – Press the Lift key (Arrow up) to lift a take. The take is now in the memory. To undo press the Drop Key to place it at the center of the tape head. You may repeatedly press the Drop key to paste multiple takes. The tape moves each time to the end of a dropped take. Lift is also used as a way to delete a take.

DROP – Use this as way to place the last take stored in memory.

SPLIT – This splits a take.

1–4 LIFT ALL – Hold down SHIFT + Lift to lift all tracks into memory.

JOIN JOIN – Press SHIFT + Split to join takes. This function joins the next closest take on either side of the active one. You may repeatedly use Join to join multiple takes.

REGION LIFT – Use the loop in and out points to define the part you want to lift.

8.10 Advanced LIFT

Besides recording, the tape can also be used as a sketchpad for creating layered sounds. Using the tape this way let's you build up a sound layer by layer on all four tracks and lift it (use lift all to lift all tracks) and then drop it in either the Synthesizer sampler or Drum sampler.

You may also save a sound to tape by pressing Lift in any of the Synthesizer or Drum sounds and then select Tape mode and press Drop. This creates a data recording of all parameters and/or samples on the active tape track. To recall the sound, Lift it from tape and drop it back into any sound from 1-8. For this function to work, the take has to be exactly the same and an isolated take as it was when it was dropped.

8.11 Changing Tape Speed

You may change the speed of the tape whenever you want, even during recording. To do this, turn the White encoder. If you hold down SHIFT and turn the White encoder the tape speed is changed in fixed steps. The sound quality changes in the same way as a real tape when changing speed – the faster the tape speed, the higher quality of the recording.

8.12 Advanced Recording Techniques

A quite special recording technique is to put the tape in Rec Arm mode and control the speed yourself. To do this press SHIFT + Rec. You are now recording but the reels are still. To move the tape back and forth, turn the Blue encoder. Depending on how quick you turn the encoder the pitch of the recording will vary. Another great recording trick is to turn the out-to-in function on, found under the Mic key. This let's you record everything you hear to a selected track. This also works as a bounce recording function.

8.13 Tape Tricks

When in Tape (or Mixer mode) the sound selection keys 1-8 turns into Tape Tricks keys:

The Tape Tricks are shown under numbers 1-8. Tape Tricks are a collection of functions made to interfere with the Tape or the Mixer in different ways. They are implemented to open up for live tweaks and quick key mixing effects.

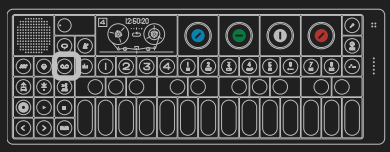
IN LOOP IN – Sets the loop in point of the tape.

OUT LOOP OUT – This sets the loop out point.

LOOP TOGGLE – Toggles loop on and off.

BREAK – Stops the tape. If a loop is active it will continue in the background to keep the break in time.

REVERSE – Change direction of the tape.



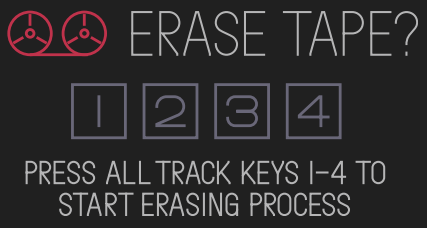
CHOP – A tempo locked repeat type of effect.

M1 MEMO 1 – Memorize any parameter in Tape or Mixer for instant recall. To use this, hold down the key and turn any encoder while in Tape or Mixer screen. Release key when done. Press the key again to instantly recall the changed parameter. This is great for switching between different EQ settings or turn up the effect level when the tape is running.

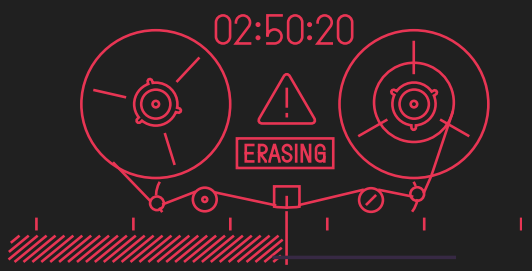
M2 MEMO 2 – Memorize any parameter in Tape or Mixer for instant recall.

8.14 Erasing Tape

To completely erase the tape and all recorded material, press SHIFT + Tape key. For good reasons you have to press all T1-T4 keys to start the erasing process.



Once all keys are pressed there's no way back. Your tape will be wiped forever.

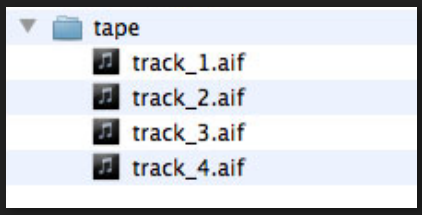


NOTE: Connect your OP-1 to your computer and transfer the Tape if you want a backup or need to free up space. See 8.15

8.15 Backing up your Tape

To backup your tape, connect your OP-1 to your computer and press SHIFT + COM. Select Disk Mode. The OP-1 will show up on your desktop as a disk.

Locate the folder named "tape" and copy the files named "track_1.aif", "track_2.aif", "track_3.aif", "track_4.aif". Drag all trackfiles to your computers desktop.



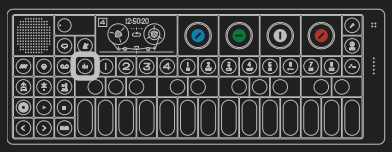
You have now made a backup of the Tape as four individual audio tracks.

NOTE: No Mix, EQ, Master effects or Drive will be applied to individual Tracks when exported. To make a final mix of your Tape, record to Album and backup the Album file. The album file will be located in Album, "SideA.aif" or "SideB.aif"

8.16 Bars

When Beat matching is turned on in Master Tempo, you'll notice bar markers just above the tape tracks. One bar is 16 beats which means if you enter 16 steps in the Endless step Sequencer and set it to 1/16 and record it it will fit exactly in one bar on the tape.

To jump from Bar to Bar, press SHIFT + Rewind (<) or SHIFT + FF (>)

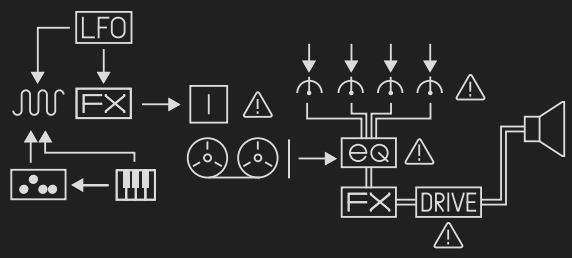


9.1 Mixer – Introduction

Mixer is the final stage of the sound path. Its main function is to set the individual level and pan of the four tape tracks (T1), to adjust the master EQ (T2), add a master Effect (T3) and to add drive to your mix (T4). But as it is also the final destination for all sound. You need to know how the sound travels inside your OP-1. This is called the signal path.

9.2 Sound Path

The sound path is the way the the sound moves from the moment you hit a key on the musical keyboard or press play on tape, until it reaches the speaker or line out. To help you keep an eye on this, there is a Sound Path screen in Mixer mode that you may check at anytime. To enter the Sound path screen, press SHIFT + the Mixer key.



NOTE: A warning symbol will lit up when any critical level is set to zero.

893 Mixer

The mixer transforms the four Tape tracks into one stereo signal. To enter the mixer, press the Mixer key. Then press T1 to enter the mixer main screen.

In the Mixer main screen, you adjust the individual level and Pan Left / Right of Tape tracks 1-4

To adjust the level of a tape track:

Turn any encoder to set the level from 0-99

Track 1 level – Blue encoder
Track 2 level – Green encoder
Track 3 level – White encoder
Track 4 level – Orange encoder

To set the Pan Left / Right

Hold down SHIFT + turn the appropriate Encoder for targeted Track to adjust the Pan Left / Right.

9.4 EQ

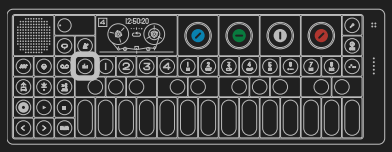
EQ stands for equalizer and is the word for a filter that let's you adjust the low, mid and high frequencies of the final mix. When the sound enters the EQ it comes as a mixed down stereo signal (This is done in the main Mixer screen).

Press T2 in Mixer mode to adjust the EQ:

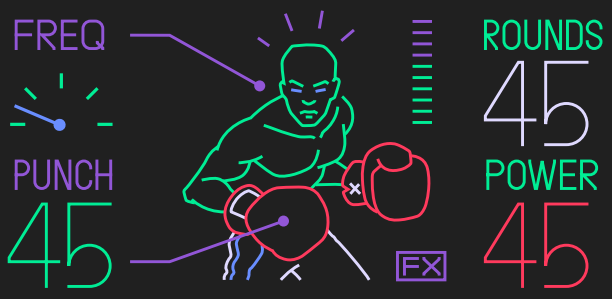
- Low (bass) – Turn the Blue encoder to adjust the low frequencies.
- Mid – Turn the Green encoder to adjust the mid frequencies.
- High (treble) – Turn the Green encoder to adjust the higher (brighter) frequencies.
- EQ Amount – Turn the Orange encoder to adjust the overall EQ level. Turn counter clockwise for a clean signal with no EQ applied.

9.5 Master Effect

Master effects are the same effects found in Synthesizer and Drum mode, but modified for stereo.



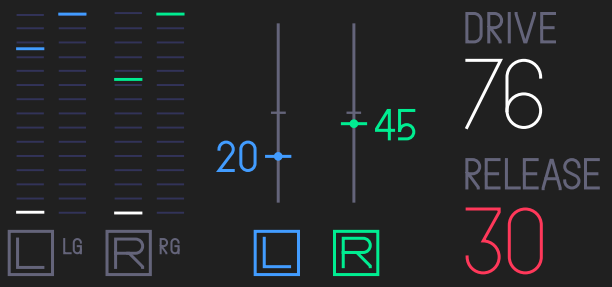
To add a master effect, press the T3 key. You may toggle an effect on and off by pressing the T3 key a second time.



To change effect, press SHIFT + T3. This enters the Master effect browser. Use Blue encoder to scroll through the list and press any key (except the musical keyboard) to make your selection.

9.6 Master Out

The master out screen is found under T4:



Here you adjust:

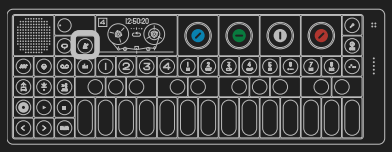
- The master balance Left / Right
- Add DRIVE
- Adjust the RELEASE of the Drive

DRIVE narrows the difference between high and low audio levels, and makes the output sound louder and more compact. At very high levels of drive, the audio starts to sound distorted.

RELEASE sets how quick the drive will narrow the difference between high and low audio levels, and at mid to long release, you'll start to notice the drive as a "pumping" sound.

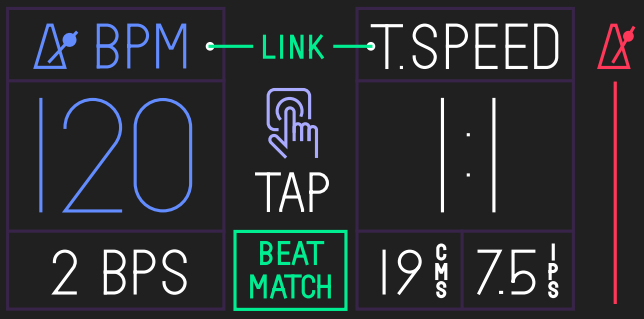
You may also use drive to add a texture and to make your final mix more dirty and raw.

PRO-TIP: Hold down SHIFT while turning Blue or Green encoder to adjust both LEFT and RIGHT at the same time.



10.1 Tempo – Introduction

In Tempo, you set the master tempo for all sequencers, you switch Beat Matching on and off. You'll also find the Metronome here.



10.2 Setting the Tempo / Tap Tempo

To set the tempo you have two choices:

A) Turn the Blue encoder

B) Tap the tempo – Do this by hitting the tempo key multiple times until you get the desired tempo.

10.3 Using the Metronome

To use the metronome, turn the Orange Encoder until you get your desired pitch. To start the metronome, press Play.

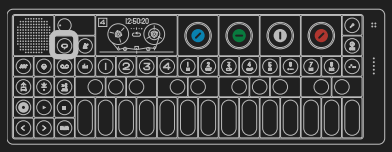
10.4 Beat Match

Beat Match is a concept of keeping the Tempo and the Tape speed in sync. When beat match is turned on, (Turn the Green Encoder until Beat Match lights up) the current tempo is locked to the Tape speed and is dimmed. This means that you now have to adjust the tape speed to change the tempo.

If you turn beat match on and switch to Tape mode, you'll notice that Bars have appeared above the tape tracks. (see 7.16 Bars) These Bars are your guidelines when recording in sync. One bar is 16 beats long. Now play a sequence and adjust the tape speed, you will hear the sequence play slower if you turn down the tape speed, and faster if you turn tape speed up. However, the pitch won't change.

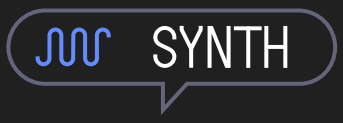
This is the beauty of Beat Match, to have a drum beat playing using the sequencer and have recorded material played back from the tape in sync at the same time. Add some tape tricks to that and you have a nice live tweaking set-up.

PRO-TIPS: Record different variations to single Bars and use the arrow keys explained in the Bars section 8.16 to easy move the play-backed loop between the variations.



11.1 Help

Your OP-1 has a built-in Help function. Pressing the Help Key at anytime brings up a Speech Bubble which tells you what mode you are in and what Sound is selected. By HOLDING down the Help Key and pressing any key you get the Key name and function of that specific key.



PRO-TIPS: Hold down Help while playing the musical keyboard to get note information.

11.2 Tools

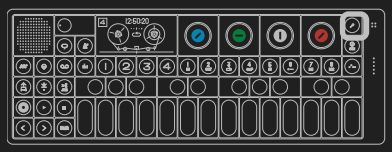
Press SHIFT + Help key to enter TOOLS. Here you set the time and date, and maybe you'll find a calculator here in the future...

BLUE encoder – MONTH / YEAR
GREEN encoder – DAY
WHITE encoder – HOUR
ORANGE encoder – MINUTE

11.3 Battery level

When you hold down the Help key you can check the battery level indicated by the VU / Battery meter located on the right side of your OP-1.

The Battery level is indicated by the LED array on the right side of your OP-1. All LED's lit (including the red) indicates a fully charged battery good for around 16 hours of heavy use. The stand-by time is approx. 2 years.

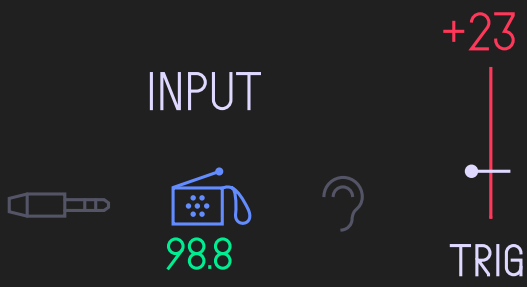


12.1 Using the Mic / Input Key

The Mic / Input key (with the microphone symbol on it) is used when you need to record any external audio.

The different sources you may record are:

- Built-in Microphone
- Line in
- Radio
- Out to In (the ear symbol)



The Mic / Input key works quite similar in any mode on the OP-1:

IN SYNTHESIZER MODE

A) Use the Mic / Input key when you have a Sampler engine selected to start to sample. Choose any source by turning the Blue Encoder.

B) Use external audio to control the Element LFO

IN DRUM MODE

Same functionality as in Synthesizer Mode

IN TAPE MODE

Pressing the Mic / Input key in Tape mode let's you toggle external audio ON / OFF. This let's you mix in some nice radio playing in the background or use the Line In and mix it with your recorded material. (A great way to connect a second OP-1 and controlling both with one Master Volume Knob.)

IN MIXER MODE

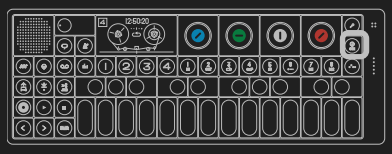
Same functionality as in Tape Mode.

NOTE: To switch source in Tape or Mixer mode, press SHIFT + Mic / Input key. This let's you switch source and adjust the level.

12.2 Using the Radio

Use the Blue Encoder while in Mic / Input screen to switch source to Radio. Use the Green Encoder to tune in to any station.

PRO-TIPS: Connect a 3.5 mm audio cable (or headphones) to Line in and use as an external antenna.

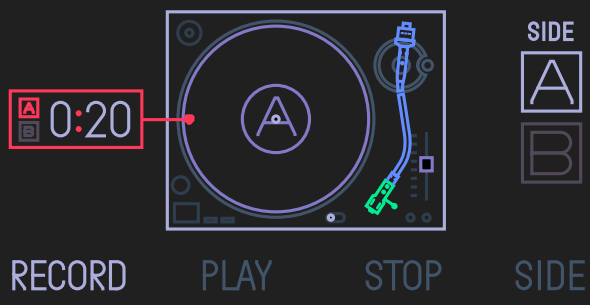


13.1 Album

Album let's you mix down all four tracks from the tape (you may also play the synthesizer simultaneously) to a stereo file. Album is also useful when you want to record any Tape Tricks or EQ effects.

You have two sides of the record – Side A and Side B each have a recording slot of 6 minutes.

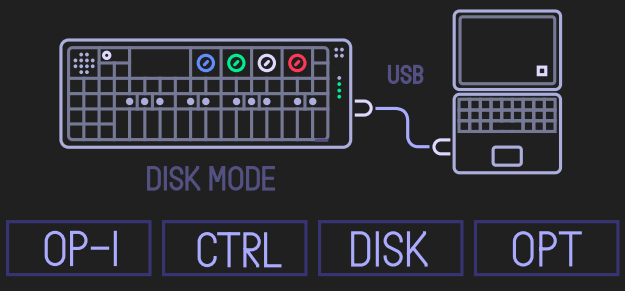
To record press the RECORD Key (T1) and then switch to Tape and press play. When you are done switch back to Album and press STOP.



The Album records directly from Master out, which means that any EQ, Master Effect or DRIVE you have added will be applied to the sound.

13.2 COM

By pressing SHIFT + Album key, you enter COM mode, which turns your OP-1 to a controller or disk.

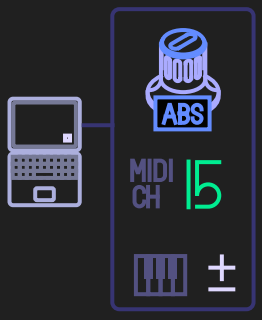


13.3 OP-1 Mode

Press the OP-1 Key (T1) for standard OP-1 mode. In this Mode, the OP-1 works as a stand-alone unit. When connected via usb, the OP-1 listens to midi-notes on MIDI channel 3.

13.4 Controller Mode

Defines OP-1 as a MIDI controller keyboard. Use Shift + the encoders to set the behavior of the encoders and Arrow Keys. You may also switch MIDI Channel by holding SHIFT + turn the Green encoder.



Knobs RELATIVE or ABSOLUTE

MIDI Channel

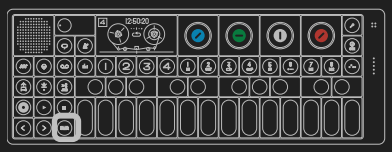
ARROW Keys behavior

13.5 DISK Mode

By pressing the DISK Key, your OP-1 turns into a storage device and will show up on your computer's desktop if connected via USB.

13.6 Using OP-1 sequencers with external equipment

Your OP-1 is always sending MIDI data out, even if you're not in controller mode. This way you may connect OP-1 to a computer via USB and use any of OP-1's built in sequencers controlling your software synthesizers or other hardware connected.



14.1 Using SHIFT

Well, using SHIFT may not be a big thing to explain and dedicate a chapter to., but on the other hand why not?

The main reason to write about it, is the function to change individual modules in Synthesizer and Drum mode.

14.2 Change a single Module

As you have learned in the Synthesizer and Drum chapter, you press the T1-T4 keys to tweak Engine or Sample kit, Envelope, Effect and LFO.

Let's say you have made settings for a perfect LFO and added a great Effect to that. The only thing that is not perfect is the Engine. So, by pressing SHIFT + T1 you are allowed to change ONLY the Engine and keep the rest of the settings, like the LFO, Effect and Envelope intact. This is also great to do live, having a sequence running and just swapping different samples or effects.

Of course you always have the option to switch a complete sound by pressing SHIFT + Sound 1-8.

14.3 SHIFT + Main Modes

Using SHIFT in main modes opens up the Sound Browser in Synthesizer and Drum mode and Erase Tape and the Signal Path screen when pressing Tape or Mixer keys.

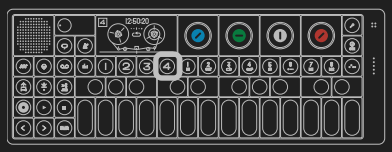
Switch Sound | Switch Sound | Erase Tape | Signal Path

14.4 SHIFT + Arrow keys

In tape mode:	Bar step back	Bar step Forward
In Tape Play + Loop On	< Move Loop	Move Loop >
In Synthesizer:	Pitch Bend -	Pitch Bend +

14.5 SHIFT + Encoders

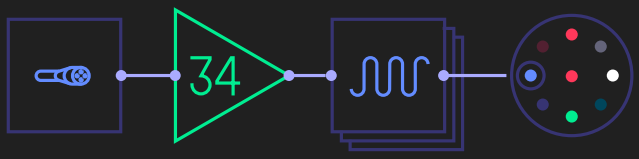
In most other modes the encoders have double functions if SHIFT is pressed. But also depending on for example if the tape is running or in standby the encoders change function. See appropriate chapter for more details.



Your OP-1 has four built-in LFO's. This section explains how they work.

15.1 ELEMENT LFO

The Element LFO uses external elements to modulate a sound. Use the Blue encoder to choose



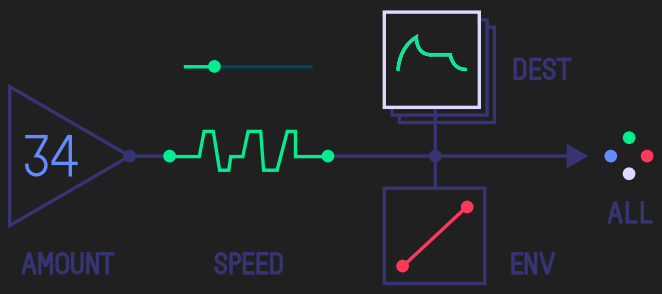
A) The built-in G-Force sensor
B) External input like Radio, Line-in or Mic.

If you selected external input, Press Shift + the Mic key to define the input source.

Blue encoder sets destination (Engine, Envelope, FX or Pitch & Volume. Green encoder sets Amount. White encoder sets Destination. Orange encoder sets destination Parameter. Dimmed colors in the color wheel represent shifted encoders.

15.2 RANDOM LFO

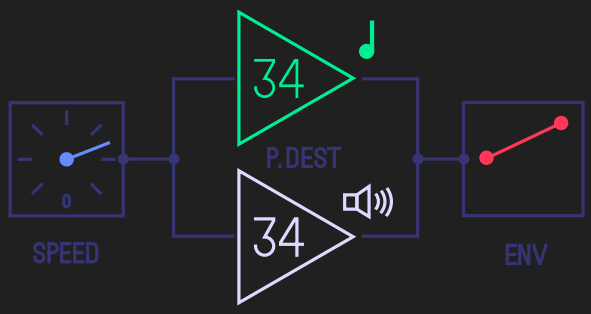
Random LFO modulates ALL parameters in a selected destination. It also have it's own envelope curve to control attack and decay



Blue encoder sets Amount. Green encoder sets speed. White sets Destination and Orange encoder sets the envelope Attack / Decay.

15.4 TREMOLO

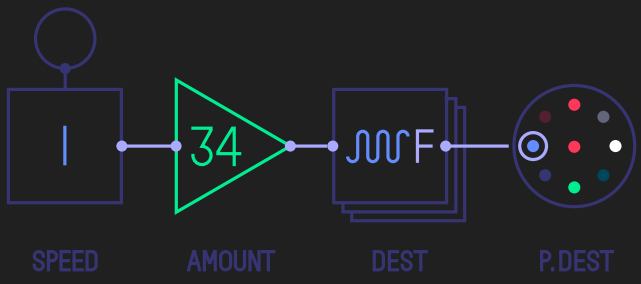
This LFO let you modulate the pitch and the Volume to create tremolo effects.



Blue encoder sets Speed. Green encoder sets Pitch. White encoder sets Volume and Orange encoder sets the envelope Attack / Decay.

15.5 VALUE LFO

The Value LFO modulates one single parameter value. Blue encoder controls the speed. Green encoder the Amount. White encoder sets Destination. Orange encoder sets destination Parameter. Dimmed colors in the color wheel represent shifted encoders.

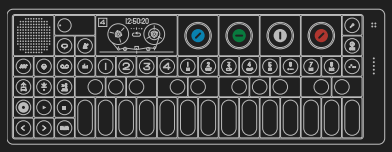


15.6 The LFO clock

The LFO clock found in Tremolo and the Value LFO indicates a tempo locked clock with numbers and a free running clock with hand.

15.6 The "F" indication

In some LFO's you'll see the destination symbol followed by an "F". This means that the LFO don't re-trigger on every note played when for example a sequencer is running. This together with a slow clock let's you create long sweeping effects.



A great way to learn how to model a sound on the OP-1 is to try to create a specific sound from real life. It might be a fat bass sound, a police siren or singing birds. The goal here is not to create a perfect ultra realistic replica, rather to learn how to combine different modules and understand their functions.

Before you do the exercises here, remember to set all modules in the Mixer to clean settings and to turn off any sequencers:

- Set all channels to around 80 and Pan to center (T1)
- Set the EQ to clean by turning the Orange encoder counter clockwise so the arrow points to CLEAN. (T2)
- Toggle any effect to OFF. (T3)
- Set master levels Left / Right to 99 and set Drive and Release to 0.
- Toggle any Sequencer to OFF.
- Enter Synthesizer mode by pressing the Synthesizer Key.

HELICOPTER

SYNTHESIZER ENGINE: Digital
ENVELOPE: Mid ATTACK and long RELEASE
FX: Punch
LFO: Parameter LFO

First. set the Master Volume to comfortable listening level.

1. Select any Sound (from 1-8) and press SHIFT + T1 to enter the Synthesizer engine browser. Select Digital from the list and press any key to exit (except the musical keyboard). The Digital synthesizer engine is simple but very flexible and good for all-round synthesizer sounds.

2. When in Synthesizer engine screen, turn any encoder until you get a noisy sound. To get a clean noise without any tone you need to set the Octave to +4. Do this by pressing > until the Octave pop-up says “Octave +4”.

3. Set the Envelope to long attack by turning the Blue encoder until you get a sloped curve. Turn the Orange encoder counter clockwise to get a mid- to long release. Set both the Green and the White encoder to maximum by turning them clockwise.

4. Enter the Effect screen by pressing the T3 key. Now set the effect to Punch by entering the Effect Browser (SHIFT + T3) and choose Punch from the list. Press any key to exit.

5. The Punch Effect is great for adding punch to drums and final mixes, but also as a multi purpose resonance filter as used here. Set the Punch effect like this: Blue parameter to middle, Green to around 50-65, White to 24 and Orange to 99.

6. Now play a note on the musical keyboard and turn the Blue encoder simultaneously. You will now hear the noise going through the filter and when you turn the Blue encoder clockwise you open up the filter and let the sound through. The next step is to control the Blue parameter (equals to the Blue encoder) and make it automatically increase and decrease at a certain speed. This is done by the Parameter LFO.

7. Press T4 to enter the LFO screen and the Press SHIFT + T4 to enter the LFO browser and select Value from the list. Press any key to exit.

8. The Value LFO is made to modulate one parameter value only. To control the Blue Parameter in the Punch effect set Speed to mid (12 o’clock), Amount to 50-100, Destination to FX and Parameter to Blue.

9. Now play the musical keyboard and you should hear a helicopter type of sound.

If you now go back to the Effect screen you will actually see that the blue parameter is moving up and down. Try to turn the Blue encoder as you play a note and you will be able to set the range for the blue parameter to act within.

SINGING BIRDS

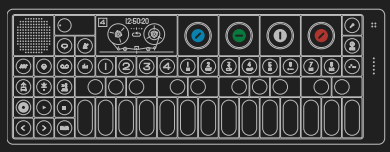
SYNTHESIZER ENGINE: FM
ENVELOPE: Short ATTACK, short DECAY, low SUSTAIN and long RELEASE
PLAY MODE: MONO, Portamento: 60
FX: Spring
SEQUENCER: Tombola

To create a sound like singing birds, start with the FM engine which is good for metallic and distinct sounds but also clean sinus wave sounds when the FM level is turned down. Here we also use the tombola to play the notes in a natural and random way and add some portamento to let the notes glide. Sometimes using a sequencer as tool for shaping a sound can be very useful.

1. Select any sound from 1-8 and change it’s engine to FM.

2. Turn the Blue encoder counter clockwise until you get a clean sinus wave sound.

3. Set the Octave to +3 (use arrow keys)



4. Set the Envelope to very short ATTACK, short DECAY, low SUSTAIN and mid RELEASE.

5. By pressing SHIFT in Envelope screen you enter the Play mode settings. Set PLAY MODE to MONO and PORTAMENTO to 60.

6. Choose the Spring effect and set the TONE to bright (white color), mid amount of TURNS, maximum DAMP and mid LEVEL.

7. Choose the TREMOLO LFO and set the SPEED to 9 o'clock, PITCH to 20-30, VOLUME to 20-50 and ENVELOPE to straight.

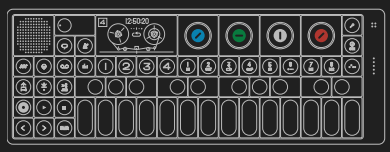
8. Now press SHIFT + Sequencer key and select TOMBOLA. Press any key to exit.

9. Drop some notes into the Tombola and set the speed to 2.

As mentioned earlier the use of a sequencer as one of the key elements can be very useful when you need to create melodic type of effects.

OP-1

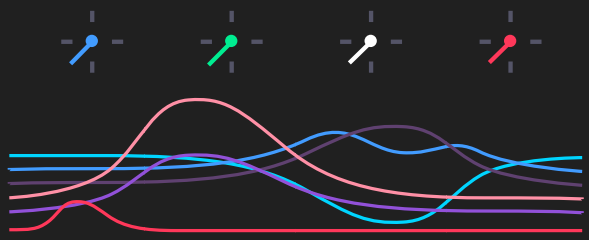
PORTABLE SYNTHESIZER
SYNTHÉTISEUR PORTABLE
TASCHEN-SYNTHESIZER
小型シンセサイザー



Reference

Cluster

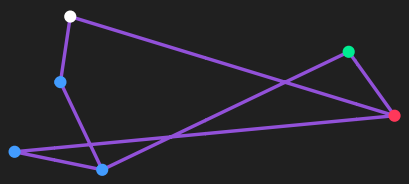
TYPE	Multi layered oscillator cluster



Number of waves (0-6)	Wave Envelope	Spread	Unitor

Digital

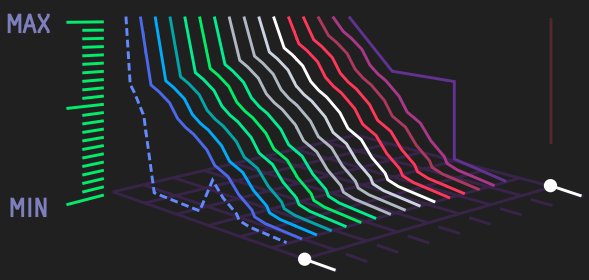
TYPE	True digital Synthesis



Wave Shaper	Octave	Detune and Ringmod. On / Off	Digital-ness

String

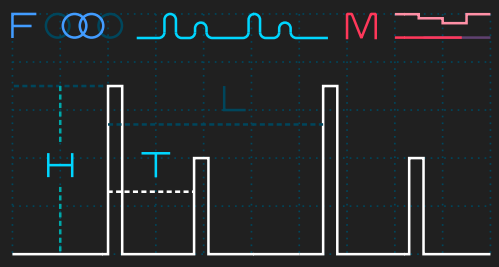
TYPE	Waveguide string model



Tension	Impulse Decay	Detune	Impulse Type

Pulse

TYPE	Dual Pulsetrain Oscillator



Filter	Amplitude	Second Pulse	Modul-ation

OP-

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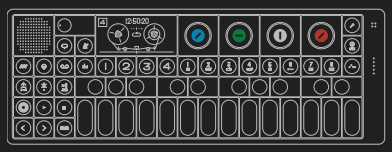
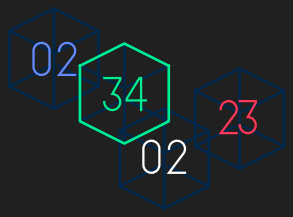


Reference

FM

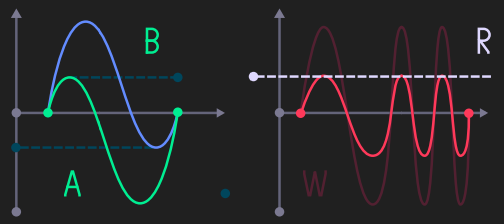
TYPE	Four operator FM synthesis



Topology	Freq.	FM Amount	Detune

Phase

TYPE	Phase Distortion



Phase Shift	Distortion Amount	Phase Filter	Phase Tilt

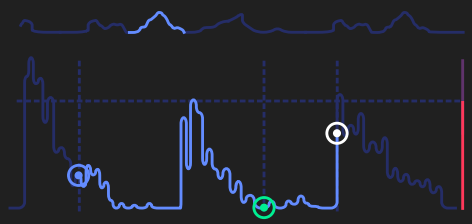
Dr Wave

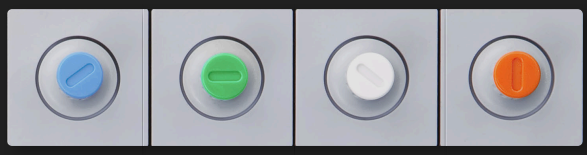
TYPE	Frequency Domain Synthesis

Wave Type & Length	Filter	Phase	Chorus

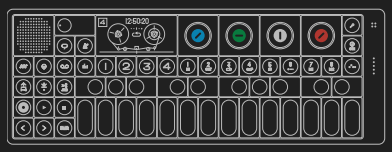
Synthesizer Sampler engine

TYPE	Teenage Sample Player





Start	Loop In	Loop Out	End
Reverse On / Off	Loop In Fine tune	Loop Out Fine tune	Gain



Reference

Drum Sampler engine

TYPE	Teenage Percussion Sample Player

Note / Pitch	In	Out	Loop Off / Once / On
Reverse On / Off	In Fine tune	Out Fine tune	Gain

Effects Reference

Delay – Solid State Delay

Blue - Size
Green - Speed
White - Feedback
Orange - Mix

Grid – Three Dimensional Feedback Plate

Blue - X Size
Green - Y Size
White - Z Feedback
Orange - Mix

Phone – Hacked Telephone System

Blue - Tone
Green - Phonic
White - Baud
Orange - Telematic

Punch – Hard Hitting Low Pass Filter

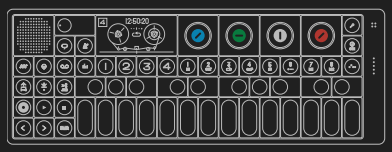
Blue - Frequency
Green - Punch
White - Rounds
Orange - Power

Spring – Mathematic Reverb

Blue - Tone
Green - Turns
White - Damping
Orange - Send

OP-1

PORTABLE SYNTHESIZER
SYNTHÉTISEUR PORTABLE
TASCHEN-SYNTHESIZER
小型シンセサイザー



Specifications

HARDWARE

CPU

- 400 MHz Processor Core (800 MMACS performance)
- 64 MB Low-Power SDRAM (12ns)
- 512 MB Nand Flash storage
- 24-bit 96kHz ADC/DAC

Battery

- Li-Ion 1800 mAh
- 16 hours active Battery Life
- 2 Years stand-by time
- Charge via USB port

I/O

- USB 2.0 high speed (OTG)
- 3.5 mm Line Input, Output
- Built-in microphone
- High output mini speaker 8 Ohm 1 Watt
- 3-axis accelerometer (G-force) sensor
- Worldwide FM band support (64-108 MHz)

Display

- Amoled display running in 60 fps
- 320 x 160 pixel resolution
- Color Depth: 16.7 M
- Contrast: 10000:1 (good for outdoor use)
- Viewing Angle: 170°
- Life Time: 30,000 hrs
- 2500mAh li-ion Polymer Battery

Mechanical

- Low profile keyboard module
- Scissor-switch ultra low profile design
- Expected lifespan of 10 million keystrokes per key

Encoders

- Industrial Grade Incremental Encoders
- Rotational life: Up to 1,000,000 revolutions
- Excellent indexing feel (remains consistent over life)
- Zinc diecast and fiber enforced high performance plastic
- Used in Avionics Operating temperature range: -40 to +85°C2.8

Body

- Advanced CNC:d one-piece Aluminum design.
- 2 X M6 Mounting holes for accessories.
- 2 X Cuts for strap accessory.

Color

- Light grey powder coated body and EDM textured keyboard

Dimensions

L 282 mm, H 102 mm, D 13.5 mm
Packaging

The OP-1 comes shipped in a reusable environmental friendly package made out of Paperfoam material.

Motion Sensor

- 3 Axis Motion sensor (G-Force)
- Assignable to any synth, envelope, effect parameter or to pitch

Credits

Many thanks to Matthew Williams for proof reading and suggestions concerning this manual. And to all beta testers for extensive testing. Big thanks to George and Kent. And to our families and friends.

OP-1 with optional Studio System rig.

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