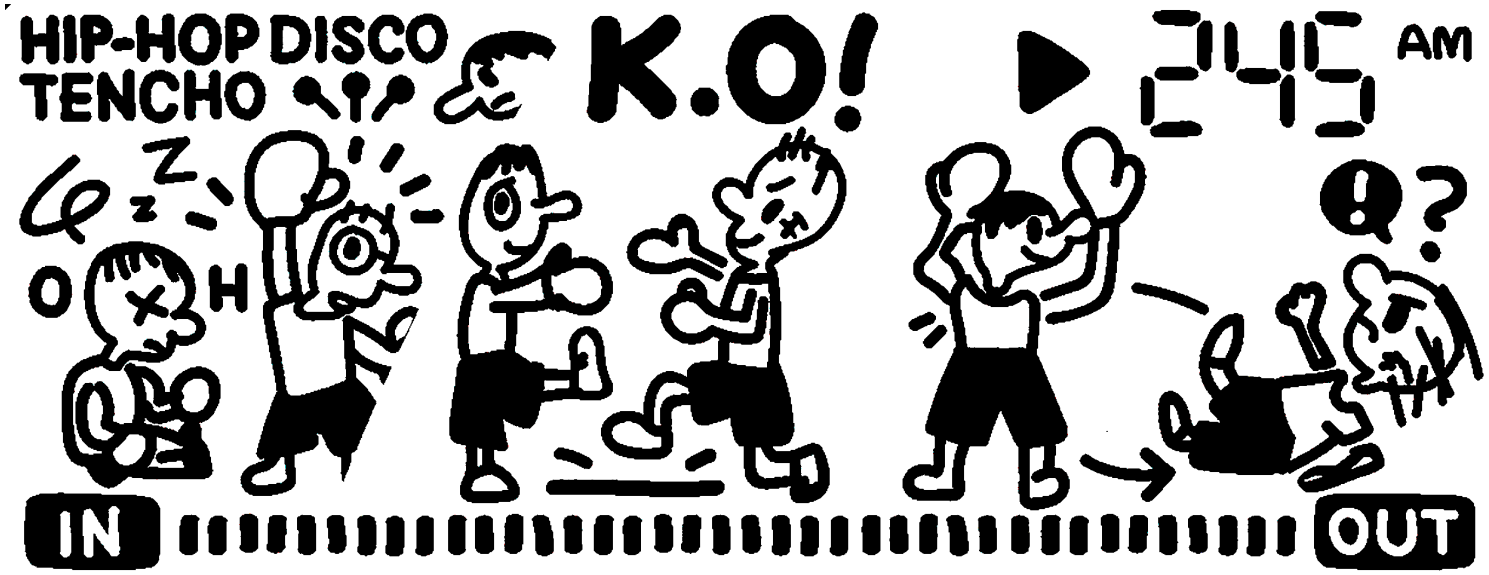
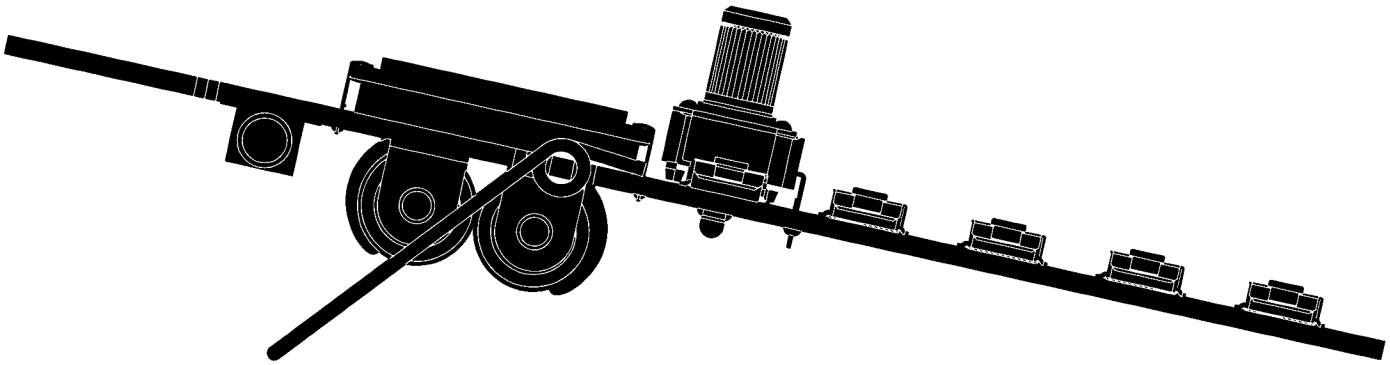


PO-33 micro sampler user guide ガイド K.O!



notice. read this first.

the product is esd sensitive and is sold without casing.

battery information:

1. install only new batteries of the same type.
2. failure to insert batteries in the correct polarity, as indicated in the battery compartment, may shorten the life of the batteries or cause batteries to leak.
3. do not mix old and new batteries.
4. do not mix alkaline, standard (carbon-zink) or rechargeable (nickel cadmium) or (nickel metal hybride) batteries.
5. do not dispose of batteries in fire.
6. batteries should be recycled or disposed of as per state and local guidelines.

fcc statement:
note: this equipment has been tested and found to comply with the limits for a class b digital device, pursuant to part 15 of the fcc rules. these limits are designed to provide reasonable protection against harmful interference in a residential installation. this equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. however, there is no guarantee that interference will not occur in a particular installation.;

if this equipment does cause harmful interference to radio or television reception, which can be determined but turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures;

- reorient or relocate the receiving antenna
- increase the separation between the equipment and receiver
- connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- consult the dealer or an experienced radio/tv technician for help.

this device complies with part 15 of the fcc rules. operation is subject to the following conditions;
1. this device may not cause harmful interference, and
2. this device must accept any interference received, including interference that may cause undesired operation.

caution: changes or modifications not expressly approved by the party responsible for compliance could void user's authority to operate the equipment.

ices statement
can ices-003 (b) / nmb-3 (b)

teenage engineering warrants that this product will be free from defects in material or workmanship for a period of 12 months from the date of teenage engineering's shipment of the product to you, the customer. in the event of a defect covered by this limited warranty, teenage engineering will, at its option and free of charge to customer, repair, replace or refund the purchase price paid.

TEENAGE ENGINEERING MAKES NO OTHER EXPRESS WARRANTIES EXCEPT AS PROVIDED HEREIN, AND ANY AND ALL IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR PARTICULAR PURPOSE SHALL ONLY BE IN EFFECT DURING THE 12 MONTH WARRANTY PERIOD PROVIDED HEREUNDER. TEENAGE ENGINEERING'S LIABILITY ON ANY WARRANTY CLAIM SHALL BE LIMITED TO THE ACTUAL PURCHASE PRICE PAID. TEENAGE ENGINEERING SHALL NOT BE RESPONSIBLE TO CUSTOMER OR ANY THIRD PARTY FOR ANY CONSEQUENTIAL, INCIDENTAL OR INDIRECT DAMAGES, INCLUDING BUT NOT LIMITED TO LOSS OF PROFITS, LOSS OF DATA, REVENUES, SALES, BUSINESS, GOODWILL OR USE.

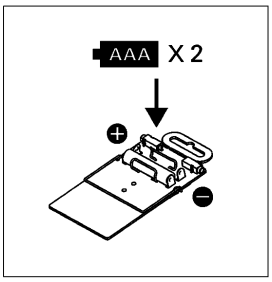
what does this limited warranty not cover?

teenage engineering has no obligation to repair, replace, or provide refunds in the following instances:

- if the alleged defect arises because customer has altered or repaired the product without the prior written consent or authorization of teenage engineering;
- if customer did not follow any applicable instructions for proper storage, usage, or maintenance of this product;
- if customer has failed to notify teenage engineering of any defect where the defect should have been reasonably apparent on inspection; or
- if customer fails to notify teenage engineering of the defect within 12 months of teenage engineering's shipment of this product to customer. this limited warranty does not cover the cost of shipping the defective product to teenage engineering for repair, or the cost of shipping the repaired or replacement product to you. how do customers receive warranty service? please call your teenage engineering customer service representative for details on how to raise an issue in relation to your product.

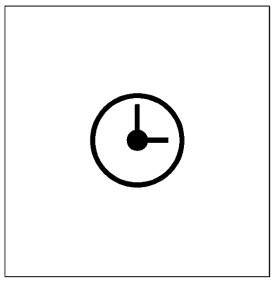
1 – getting started

power up



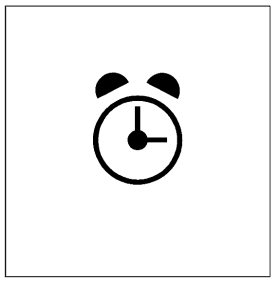
insert two fresh AAA batteries. pay attention to plus and minus poles.

set clock



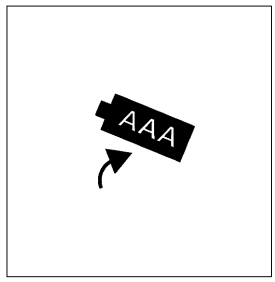
set time by turning knob A for hours and knob B for minutes. press any key to confirm and exit.

alarm clock



press sound + pattern. set alarm clock by turning A for hours and B for minutes. (disable alarm by turning knob A all the way down.) press any key 1-16 to set pattern for the alarm. to stop the alarm press any key.

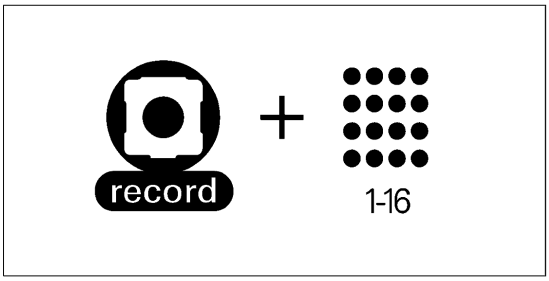
reset clock



reset the clock by removing the batteries and start over.

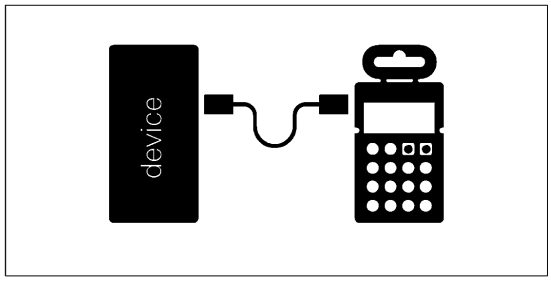
2 – recording

record with microphone



hold record + any key from 1-16. the microphone will record until the keys are released, and the recording will be stored in the position you selected (1-16). PO-33 has a total of 40 seconds recording memory. while recording, the number of seconds left will be displayed on the LCD. if the memory is full, delete or record over an existing sound.

record via line in



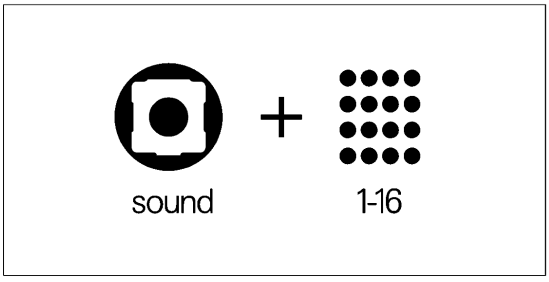
if a cable is inserted into the line in jack, the PO-33 will record via line in.

3 – melodic and drum

PO-33 has 16 sounds divided into two sections; melodic and drum. a recorded sound will behave differently depending on which section it was recorded to.
in the melodic section the keys from 1-16 represents a scale, and each key will trigger the whole sound.
in the drum section each key from 1-16 represents a slice of the sound.

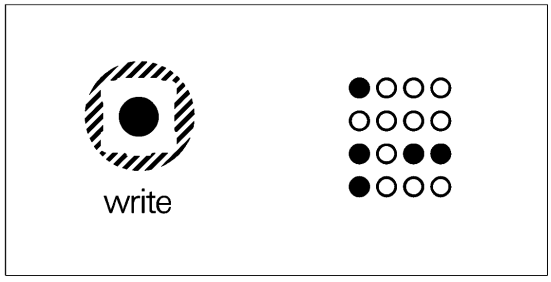
4 – playing

select sound



select a sound by holding the sound key and pressing any key from 1-16. press any key from 1-16 to play. if nothing is heard, press write key once.

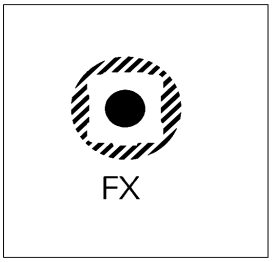
create



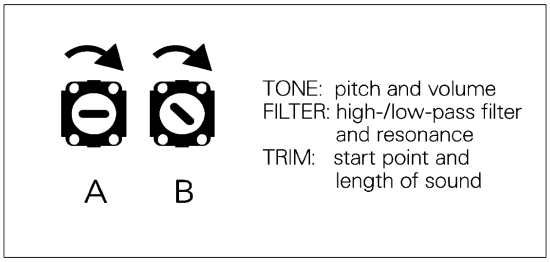
to enter/exit rec mode, press write. enter sound/notes in grid. active steps will be lit. press play to listen to your pattern.

6 – tweak the sound

parameters

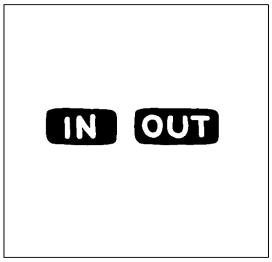


press FX to toggle between the different parameters.



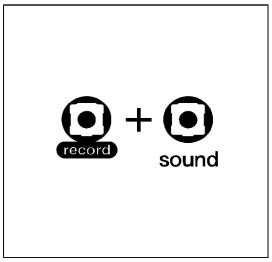
PO-33 has a total of six adjustable parameters. all parameters are adjusted using the two knobs, A and B.

trim



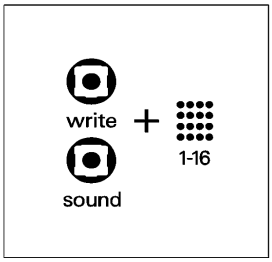
in trim mode turn A to set the start of the sound, turn B to set the length of the sound. in the drum section each slice can be adjusted individually. the last triggered slice will be adjusted.

delete sound



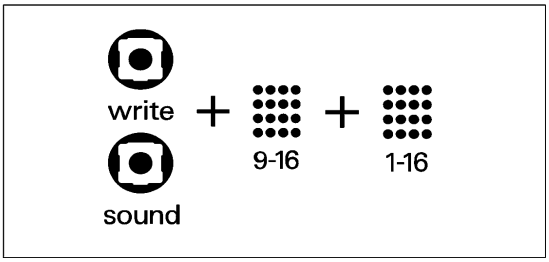
hold record and press sound to delete the currently selected sound.

copy sound



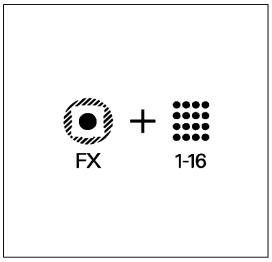
hold write + sound and press any key 1-16 to copy the selected sound to that position.

copy slice



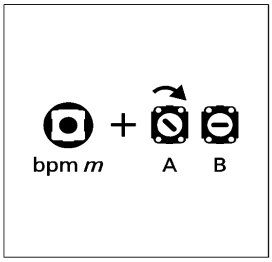
to copy the last triggered slice from one drum sound to another; hold write + sound and press any drum key 9-16 and then any key 1-16.

adding effects



while playing, hold FX and press any key from 1-15. if write mode is enabled, the effects will be saved in the pattern. to clear the saved effects, make sure write mode is enabled while holding FX + key 16.

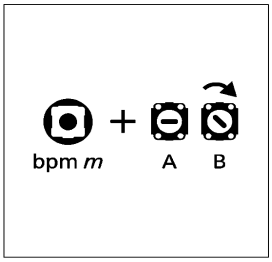
swing



hold bpm and turn A to adjust the swing.

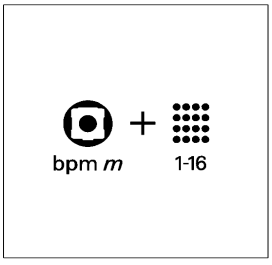
tempo

press bpm to switch tempo. the bpm will be displayed in the upper right corner of the screen.
HIP HOP (80 bpm)
DISCO (120 bpm)
TENCHO (140 bpm)



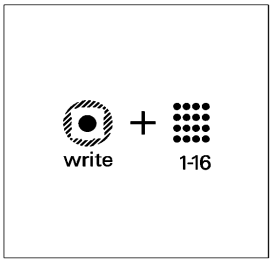
hold bpm and turn B to fine-tune tempo (from 60 to 240 bpm).

volume



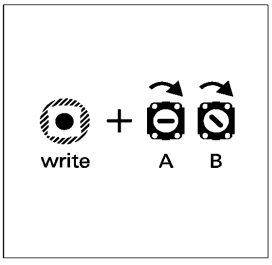
hold bpm and press any key 1-16 to adjust master volume. note: be careful with the volume setting when using headphones. only exceed volume setting 5 with caution.

live record



while playing, hold write and press any key 1-16 to punch in notes. notes will be quantized along with current swing setting. release write when finished.

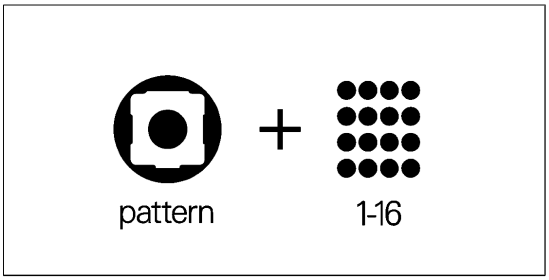
parameter locking



while playing a pattern, hold write and turn knob A and knob B to lock the currently selected parameters. the parameters will affect the currently selected sound.
lockable parameters:
- tone
- filter

7 – making a song (pattern chaining)

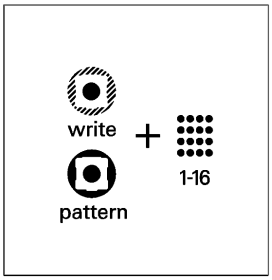
chain pattern



press and hold pattern and select which patterns 1-16 to chain by pressing the corresponding key 1-16. up to 128 patterns can be chained.

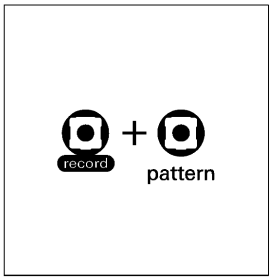
one pattern can be selected multiple times.
example: 1,1,1,4 plays pattern 1 three times then moves on to pattern 4. after the last pattern is played the sequence will start over again.

copy pattern



hold write + pattern and press 1-16 to paste the active pattern to the corresponding new slot.

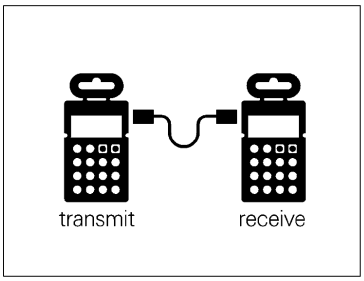
clear pattern



press record + pattern to clear the active pattern.

8 – data

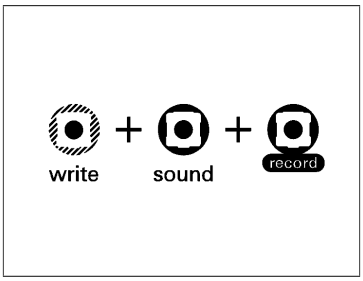
direct transfer



it is possible to transfer sound and pattern data directly between units, using the line out / line in connectors.

insert a 3.5mm stereo cable from the transferring unit line out to receiving unit line in.

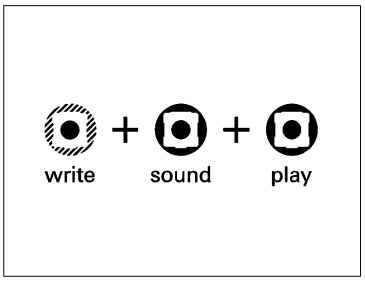
receive data



on the receiving unit press and hold write + sound + record to enter receive mode.

note: all samples and patterns on the receiving unit will be erased once the transfer starts.

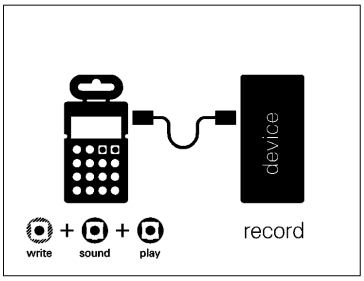
transmit data



before transmitting make sure the receiving unit is in receive mode.

on the transmitting unit: press write + sound + play to transmit data to receiving unit.

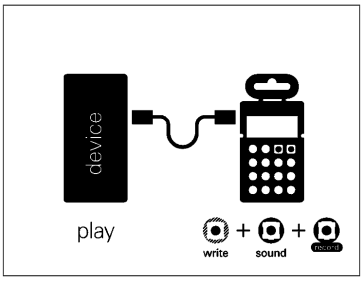
backup data



sound and pattern data can be stored to any stereo recording device for saving and sharing. connect a 3.5mm stereo cable from the transferring unit line out to the recording device line in.

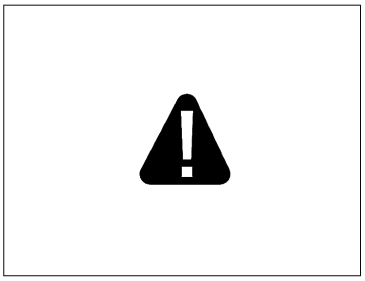
start recording on the device and then press write + sound + play to transmit data.

restore data



to restore data back to the pocket operator connect the device line out with a 3.5mm stereo cable to pocket operator line in.

press write + sound + record to enter receive mode and then press play on the device to send data.

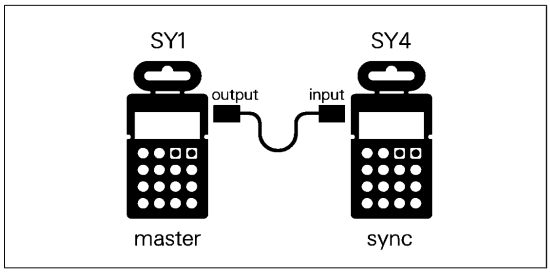


note: when restoring data to a pocket operator all samples and patterns on the receiving unit will be erased once the transfer starts.

to verify that all data was saved and restored correctly you may want to use a secondary PO-33 unit for verification to avoid erasing the original content.

9 – sync multiple units

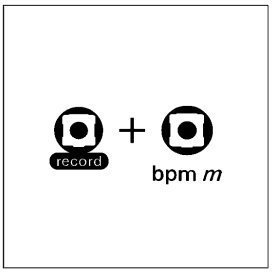
sync



it is possible to sync multiple pocket operators with a click track using line in and out.

warning: sync levels should not exceed 5vpp (volt peak-to-peak).

connect a standard stereo audio cable between the units. the master unit will control the tempo of the sync unit.



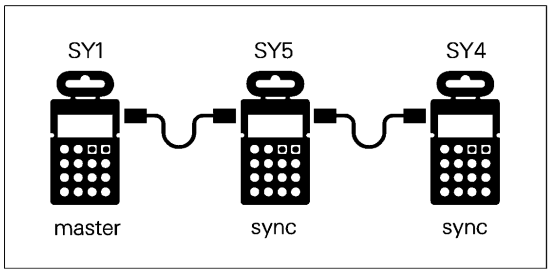
hold record and press bpm on master unit to toggle sync modes. press repeatedly to toggle between different modes displayed in the upper right corner of the screen. press play on sync unit to wait for master clock sync. press play on master to start.

sync modes

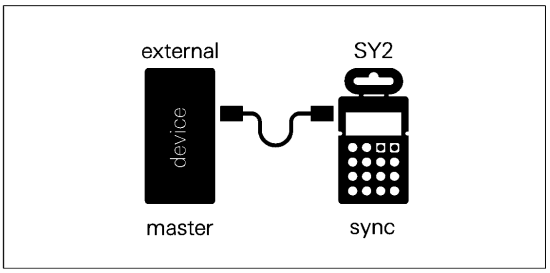
ID	input	output
SY0	stereo	stereo
SY1	stereo	mono/sync
SY2	sync	stereo
SY3	sync	mono/sync
SY4	mono/sync	stereo
SY5	mono/sync	mono/sync

there are 5 sync modes. default mode is SY0. when sync is used the signal will be split between audio (right) and sync (left).

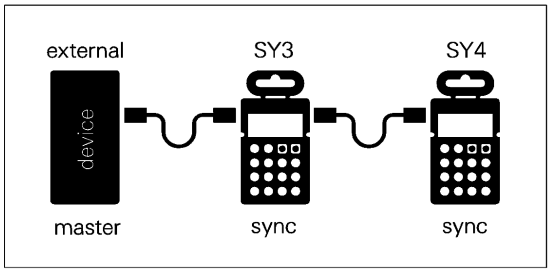
sync scenarios



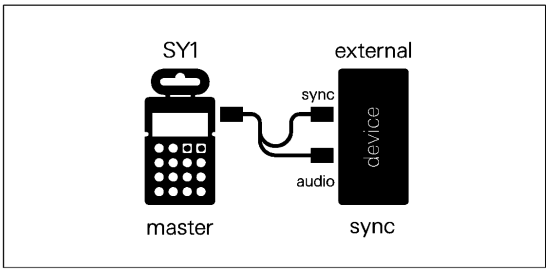
example A: sync three pocket operator units.
chain: PO-12 > PO-24 > PO-33



example B: sync external device such as volca, iPhone, computer or synckontrol to PO-33.



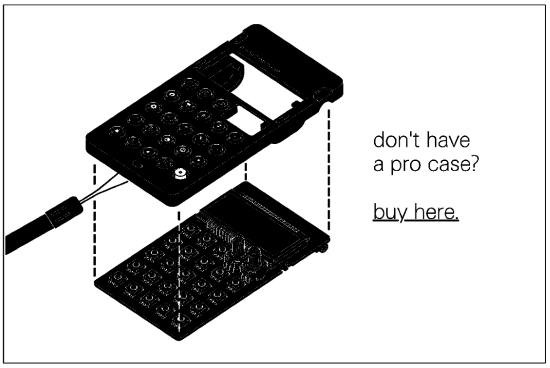
example C: sync an external device to two pocket operator units.



example D: sync PO-33 to an external device.

mount the pro case (optional)

to mount the pro case to a pocket operator, first you need to break away the hanger and remove the folding stand.



wrap the pro case around the edges of the unit. make sure the edges of the case is tightly fit.

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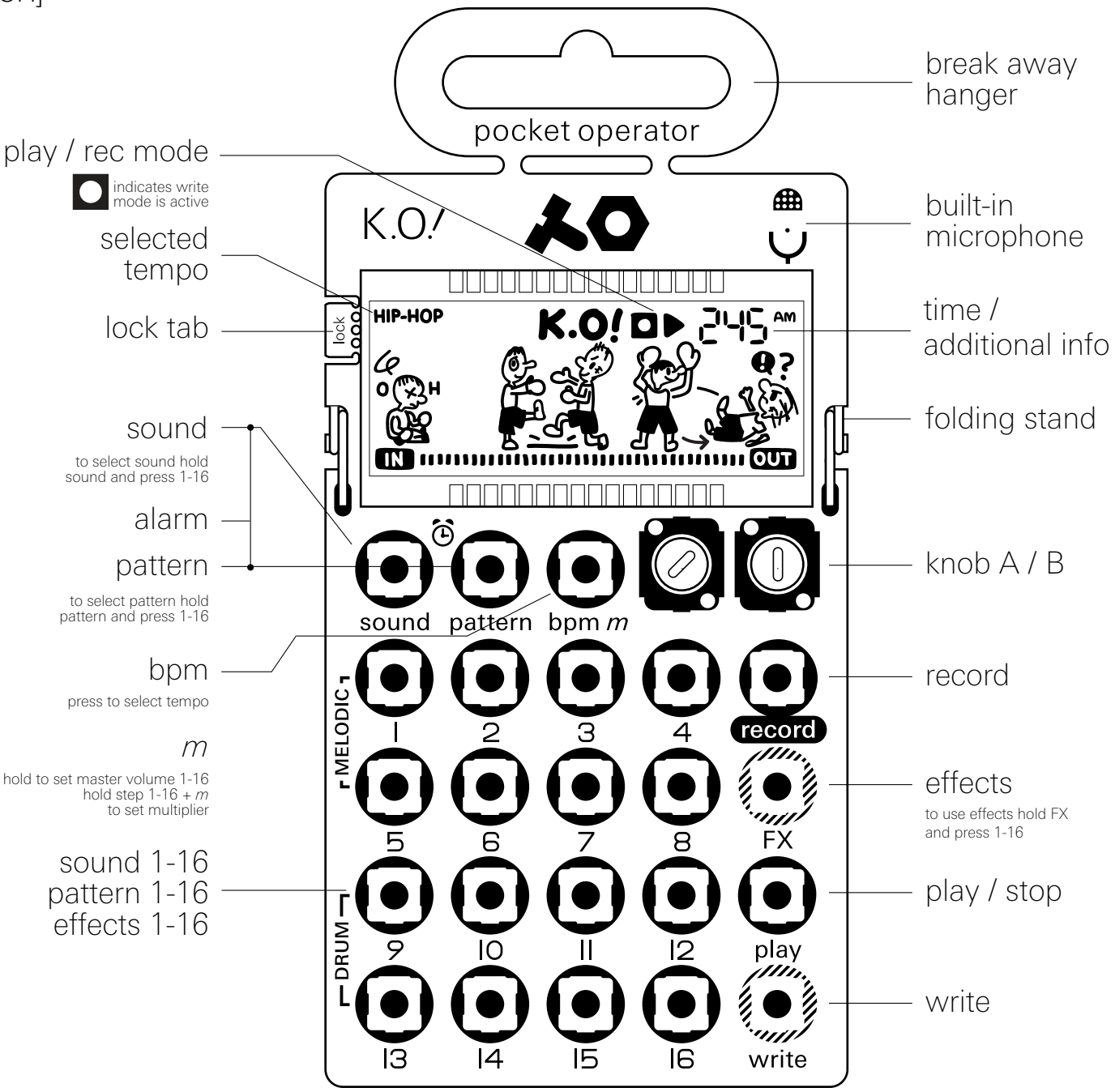

effects 1-16

1. loop 16
2. loop 12
3. loop short
4. loop shorter
5. unison
6. unison low
7. octave up
8. octave down
9. stutter 4
10. stutter 3
11. scratch
12. scratch fast
13. 6/8 quantise
14. retrigger pattern
15. reverse
16. no effect

factory reset

hold pattern + write while inserting batteries to restore the unit to factory default.

auto power off (a.p.o.)
the unit auto powers off when no buttons are pressed for a while, only powering the display to show time.
press sound + bpm to show battery status.

lock tab
break off the lock tab to freeze all patterns. to reverse, solder the two pads by the lock tab together. to restore to locked settings, remove the batteries.

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REV.B

PO-33 K.O! manual [en]

1. getting started

power-up

insert two fresh AAA batteries. pay attention to plus and minus poles. set time by turning knob A for hours and knob B for minutes. press any key to confirm and exit.

alarm clock

press sound + pattern. set alarm clock by turning A for hours and B for minutes. (disable by turning knob A all the way down.) press any key 1-16 to set pattern for the alarm. to stop alarm press any key.

reset clock

reset the clock by removing the batteries and start over.

2. recording

hold record + any key from 1-16. the microphone will record until the keys are released, and the recording will be stored in the position you selected (1-16). if a cable is inserted into the line in jack, the PO-33 will record via line in.

PO-33 has a total of 40 seconds recording memory. while recording, the number of seconds left will be displayed on the LCD. if the memory is full, delete or record over an existing sound.

3. melodic and drum

PO-33 has 16 sounds divided into two sections; melodic and drum. a recorded sound will behave differently depending on which section it was recorded to.
in the melodic section the keys from 1-16 represents a scale, and each key will trigger the whole sound.
in the drum section each key from 1-16 represents a slice of the sound.

4. playing

select a sound by holding the sound key and pressing any key from 1-16. press any key from 1-16 to play. if nothing is heard, press write key once.

5. making a beat

to enter/exit rec mode, press write. enter sound/notes in grid. active steps will be lit. press play to listen to your pattern.

6. playing a pattern

hold pattern and press any key from 1-16 to select pattern. blinking led indicates active pattern. press play to start playing. press play again to stop. a pattern consists of 16 steps.

7. tweak the sound

PO-33 has a total of six adjustable parameters. all parameters are adjusted using the two knobs, A and B. press FX to toggle between the different parameters;
- pitch and volume
- high-/low-pass filter and resonance
- start point and length of sound

trim

press FX until “tri” is displayed in the top right corner. turn A to set the start of the sound, turn B to set the length of the sound. in the drum section each slice can be adjusted individually. the last triggered slice will be adjusted.

8. delete sound

hold record and press sound to delete the currently selected sound.

9. copy sound

select a sound. hold write + sound and press any key 1-16 to copy the selected sound to that position.

copy slice

to copy the last triggered slice from one drum sound to another; hold write + sound and press any drum key 9-16 and then any key 1-16.

10. adding effects

while playing, hold FX and press any key from 1-15. if write mode is enabled, the effects will be saved in the pattern. to clear the saved effects, make sure write mode is enabled while holding FX + key 16.

11. volume

hold bpm and press any key 1-16 to adjust master volume.

12. tempo

press bpm to switch tempo. the bpm will be displayed in the upper right corner of the screen.
HIP HOP (80 bpm)
DISCO (120 bpm)
TENCHO (140 bpm)
hold bpm and turn B to fine-tune tempo, from 60 to 240 bpm.
hold bpm and turn A to adjust the swing.

13. making a song (pattern chaining)

press and hold pattern and select which patterns 1-16 to chain by pressing the corresponding key 1-16. up to 128 patterns can be chained. one pattern can be selected multiple times.
example 1,1,1,4
plays pattern 1 three times then moves on to pattern 4. after the last pattern is played the sequence will start over again.

copy pattern

hold write + pattern and press 1-16 to paste the active pattern to the corresponding new slot.

clear pattern

press record + pattern to clear the active pattern.

14. parameter locking

while playing a pattern, hold write and turn knob A and knob B to lock the currently selected parameters. the parameters will affect the currently selected sound.
lockable parameters:
- pitch and volume
- high-/low-pass filter and resonance

15. sync multiple units

connect a standard stereo audio cable between the units. the master unit will control the tempo of the slave unit. hold record and press bpm on master unit to toggle sync modes. press repeatedly to toggle between different modes displayed in the upper right corner of the screen. press play on slave unit to wait for master clock sync. press play on master to start.

sync example

chain:	PO-32 →	PO-35 →	PO-33
setting:	SY1	SY5	SY4

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The Complete T.E. PO-33 K.O! Guide

by Callum Howkins (2018)

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introduction

the teenage engineering po-33 k.o! is a compact 8-bit sampler. as part of the 'metal series' of pocket operators, the po-33 retains the same form factor as the rest of the product line while also adding the extra features first implemented with the po-32 tonic. the po-33 repurposes the now-standard pocket operator microphone to allow for simple, on-the-go sampling.

this guide will cover all the major features of the po-33, as well as throwing in some tips and tricks that i have found useful during the time i have spent with the unit. as part of a series on all three 'metal series' pocket operators, my aim is to demonstrate the power of these instruments and highlight their capabilities as serious music-making machines.

the idea behind this article is to deliver an experience similar to the old gaming strategy guides i had whilst growing up — a comprehensive tutorial which answers all the major faqs and can be used standalone without delving through various forums and review sites. as someone who regularly spends hours scanning through the depths of the online synth community, my companion guides are essentially a collection of useful information that i have found online during my free time.

1.0. how is it built?

on a surface level, the po-33 is very similar to the other pocket operators. below is a quick teardown of all the parts, providing a quick glance at the hardware involved.

1.1. the board, buttons and pots

the po-33 k.o! uses the exact same style of construction as the previous pocket operators. instead of using a traditional case, the po-33 is simply printed on a thin yet surprisingly robust circuit board. the screen shields the sensitive components as well as serving as a 'box' for the speaker to produce sound.

the buttons have not changed since the original incarnations — the simple click-style switches are far from perfect but serve as a somewhat effective way to either play the synthesizer live or input steps into the sequencer. the po-33 retains the same layout as before, using 23 identical buttons (with 16 sequencer buttons in a 4x4 grid) and two pots.

inside, the po-33 runs on a relatively simple chip. the dsp in the unit can handle four monophonic voices, meaning that a maximum of four samples can be playing at any one time. in terms of voice stealing, new voices will overwrite previous ones.

1.2. the mic

as part of the metal series, the po-33 comes equipped with a small but powerful microphone. without the microtonic engine found in the other 3 series models, the po-33's mic is only used for recording samples. backup transfers can only be sent via the line in due to the high resolution required.

1.3. the screen

much like the other units in the series, the po-33's screen forgoes complex menus. instead, teenage engineering has opted to display a basic animated scene with a few parameters dotted about in the corners. a simple breakdown is illustrated below:

the po-33's screen tells the story of an elderly boxer

the screen provides the following bits of information:
1. play and record indicators
2. tempo
3. a and b parameter levels
4. the current time
5. the bizarre scene of an elderly man boxing

2.0. what can it do?
despite the small size, the po-33 packs in a huge number of different features — the most useful of which have been detailed in this section:

2.1. the two sample types
the po-33 offers two distinct ways to play back recorded content: buttons 1 to 8 contain **melodic samples which can be played chromatically** while numbers 9 through 16 are **one sample split into 16 slices.** this means the first 8 sounds are ideal for **melodic lines** while the lower 16 work best for **drums and percussion**.

the po-33 has a total polyphony of **4**. it is worth keeping in mind that each track is **monophonic**, including the rhythmic tracks.

2.2. sounds
the po-33 can hold up to 16 different samples, or sounds, at once. as previously mentioned, sounds 1 to 8 are played chromatically while 9 to 16 are sliced. sounds can be selected by holding the sound button and pressing the desired number. the melodic tracks will play different notes across the 1–16 keys when selected. unlike in the po-35, this scale cannot be changed

2.3. recording samples using the mic
to record a sound into any of the sample slots, press and hold the record button along with the corresponding number. the po-33 will wait for the incoming audio to react a certain threshold before recording starts. levels can be monitored through with the a and b parameter bars. once either button is released, the recording will end.

2.4. changing parameters
each sample voice provides four different parameters spread across two different pages. the a and b knobs control each setting, while pressing the fx buttons once changes the page.

1st page:
a: filter
the po-33 offers a digital multi-mode filter which is fully variable between high-pass and low-pass types.
b: resonance
turning pot b adjusts the resonance of the digital filter.

2nd page:
a: trim
this determines how late into the recording playback begins (the start point).
b: length
this setting determines when the sample will end.

2.4. fx
the po-33 has 16 effects assigned to each of the fx buttons. for those unfamiliar with previous operators, punch-in effects offer a range of pre-programmed stutters, fills and glitchy rhythmic variations.

effects can be recorded into the sequencer by holding write and pressing the desired effect button.

the list of effects
1. loop 16
2. loop 12
3. loop short
4. loop shorter
5. unison
6. unison low
7. octave up
8. octave down
9. stutter 8
10. stutter 6
11. scratch
12. scratch fast
13. 6/8 quantize
14. retrigger
15. reverse
16. no effect

2.5. the filter
the po-33 has a variable multimode filter with resonance control. each sound provides fully independent filter settings, allowing for timbral changes on a per-channel basis.

3.0. the sequencer
like the other units in the series, the po-33 comes equipped with a 16-step two-track sequencer. while the sequencer may at first seem fairly basic, teenage engineering has managed to cram some advanced features into the design.

3.1. pattern select
to choose a pattern from the unit's memory, press and hold pattern and select one of the 16 options. patterns with existing sequences will have a dull light present while completely blank patterns will remain unlit. the selected option is highlighted by a bright flashing light.

3.2. tempo
the po-33 offers three pre-defined tempo settings: hip-hop (80bpm), disco (120bpm) and adorably misspelled 'tencho' (140bpm). the tempo can also be set manually by holding down bpm and turning pot b to choose a value between 60 and 200. swing can also be dialled in by holding the bpm button and turning pot a, with 18 settings available.

3.3. write mode
write mode is accessed by pressing the write button once. this turns the po-33 into a step sequencer, where buttons 1 to 16 represent the corresponding steps.
to choose a track to record to, hold sound and choose either one of melodic or drum sample channels.
to place a note, press the desired step while in write mode. parameters can be dialled into the sequencer by continuing to hold the step and using the a and b pots to dial in the required parameter settings.

3.4. live record
to record notes into the sequencer live, simply hold write. once a sound is selected, anything played will be recorded to memory.

3.5. recording parameters (p-locks)
the po-33 offers a surprisingly complex live recording systems, borrowing elektron's 'p-lock' style of motion sequencing. to record changes into the sequencer, simply enter live record mode and make changes using the a and b pots. as before, pressing fx will change the functions of these pots and allow for the live recording of all four parameters.

3.6. pattern chaining and recording longer patterns
when selecting a pattern from memory, hold the pattern button while pressing 1 to 16 in the desired order. the same pattern can be pressed multiple times to create a repeat of the bar.
once one chain can be active at a time and will be deleted upon the creation of a new chain.
if a longer chain is used, live record mode will allow the user to seamless record for the entire length of the pattern. this can be used to create patterns far longer than 16 steps.

3.7. clearing a pattern
to delete all data from the currently selected pattern, hold record and press pattern.

4.0. other functions
like the other pocket operators, the po-33 has many undocumented basic features. these small utilities can often come in handy:

4.1. volume
the volume can be adjusted by holding bpm and selecting 1 through 16.

4.2. powering on and off
the po-33 auto powers down after being idle for 60 seconds. when a jack is inserted into the output, this increased to 60 minutes.

4.3. factory reset
the reset the po-33 to factory setting, remove the batteries while holding pattern and write. this will restore the factory samples and sequencer while deleting all user data.

4.4. sync modes
multiple po units can be synced together to play in time and through a single audio output. the sync modes work in the following manner:

sy0: sync mode is off
sy1: receives stereo input, outputs mono + sync
sy2: receives sync input, outputs stereo
sy3: receives sync input, outputs mono + sync
sy4: receives mono + sync, outputs stereo
sy5: receives mono + sync, outputs mono + sync

4.5. the lock tab
once the lock tab on the side of the unit has been broken, the current samples will become the new default settings. these can be overridden, but performing a factory reset will recall the new data rather than the teenage engineering-supplied samples and patterns.

4.6. receiving backup data
press sound, write and record simultaneously to put the po-33 into recieve mode. a backup file can then be received through the line input. be aware that this will take some time as it transfer actual sample data.

4.7. sending backup data
the po-33 allows for a full system backup. press write and sound and play to transfer all information on the unit into an audio file.
always make sure to use a stereo cable when sending backups to ensure that all information is transferred correctly.

5.0. tips and tricks
this section will look at some of the more unique ways to use the po-33 creatively. i will update this part of the guide regularly with any additional tricks that i discover online.

5.1. faux 'mute mode'
while the sequencer is playing, pressing and holding a sound on any of the tracks will mute the corresponding channel until the button is released. this can be used effectively in live performances.

5.2. copying sounds
simultaneously pressing write + rec + sound alongside one of the 16 buttons will copy the current voice sample into the selected slot.

5.3. copying slices
to take an individual slice or drum sound from one sound to another, press write and sound at the same time. once the sounds are illuminated, press select the number you would like to copy followed by the destination. the last played sound will be copied.

5.4. building 'kits'
the copy method (5.3.) can be used to build drum kits within the device. one shots can be loaded on as melodic samples then copied to a slice, allowing for the creation of complex drum banks.

5.5. system information
pressing sound and bpm together will display various system information.

5.6. misc. info
for melodic samples, the last pitch played in live performance mode will be the default note for that particular sound in write mode.
to reset the recorded parameters on a knob, hold down record and turn it.

when backing up, always record the outgoing audio file in stereo. if recorded in mono, important information will be lost.

thank you