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Everything you wanted to know about Pocket Operators

After [OP-1](#), the following products released by Teenage Engineering (Pocket Operators) followed in the footsteps started by Kraftwerk when in 1981 they created the song “Pocket Calculator” which contained the famous chorus “I’m the operator / With my pocket calculator” and [they performed live](#) playing with an adapted version of the [Casio VL-80](#) music calculator. Pocket Operators are synthesizers and rhythm machines with the appearance of calculators, very low cost and that can be connected to each other to, among all, create all the functions of electronic synthesizers (drum machines, bass lines , chords, samplers and voice synthesizers). Each of them has a liquid crystal display in the place where calculators usually display the digits but POs use it to show useful information on the operation as well as an animation that rhythmically accompanies the sounds.



To further accentuate the playful nature of these machines, after the series of 9 basic Pocket Operators they created special editions of some of them with sounds from television series or video games such as [Rick and Morty](#), [Mega Man](#) or [Street Fighter](#).

Name	Poliphony	*	Function	Resources																																																																																																																
PO-12 Rhythm 	6	func	LFO (15), LPF (5,6), HPF (7,8), Delay (4), Vibrato (16), Distortion (2), Stutter (9,10), Repeat (11,12), Low sample rate (1), Bit crush (3), Note shuffle (13), Feedback (14) <table><tr><td colspan="4">sound 1-16</td><td colspan="4">effect 1-16</td></tr><tr><td>1. bass drum</td><td>9. hand clap</td><td>17. low sample rate</td><td>9. stutter 4</td><td>1. low sample rate</td><td>9. stutter 4</td><td>17. low sample rate</td><td>9. stutter 4</td></tr><tr><td>2. snare drum</td><td>10. click</td><td>2. distortion</td><td>10. stutter 3</td><td>2. distortion</td><td>10. stutter 3</td><td>2. distortion</td><td>10. stutter 3</td></tr><tr><td>3. closed hi-hat</td><td>11. low tom</td><td>3. bit crush</td><td>11. repeat 8</td><td>3. bit crush</td><td>11. repeat 8</td><td>3. bit crush</td><td>11. repeat 8</td></tr><tr><td>4. open hi-hat</td><td>12. hi tom</td><td>4. delay</td><td>12. repeat 6</td><td>4. delay</td><td>12. repeat 6</td><td>4. delay</td><td>12. repeat 6</td></tr><tr><td>5. synthesized snare</td><td>13. cow bell</td><td>5. lowpass filter</td><td>13. note shuffle</td><td>5. lowpass filter</td><td>13. note shuffle</td><td>5. lowpass filter</td><td>13. note shuffle</td></tr><tr><td>6. sticks</td><td>14. blip</td><td>6. lowpass sweep</td><td>14. feedback</td><td>6. lowpass sweep</td><td>14. feedback</td><td>6. lowpass sweep</td><td>14. feedback</td></tr><tr><td>7. cymbal</td><td>15. tone</td><td>7. hipass filter</td><td>15. parameter lfo</td><td>7. hipass filter</td><td>15. parameter lfo</td><td>7. hipass filter</td><td>15. parameter lfo</td></tr><tr><td>8. noise</td><td>16. bass tone</td><td>8. hipass sweep</td><td>16. vibrato</td><td>8. hipass sweep</td><td>16. vibrato</td><td>8. hipass sweep</td><td>16. vibrato</td></tr></table> <table><tr><th colspan="4">PO-12 Rhythm Sounds</th><th colspan="4">PO-12 Rhythm Effects</th></tr><tr><td>Bass Drum</td><td>Snare Drum</td><td>Closed Hi-hat</td><td>Open Hi-hat</td><td>Low Sample Rate</td><td>Distortion</td><td>Bit Crush</td><td>Delay</td></tr><tr><td>Synthesized Snare</td><td>Sticks</td><td>Cymbal</td><td>Noise</td><td>Lowpass Filter</td><td>Lowpass Sweep</td><td>Hipass Filter</td><td>Hipass Sweep</td></tr><tr><td>Hand Clap</td><td>Click</td><td>Low Tom</td><td>Hi Tom</td><td>Stutter 4</td><td>Stutter 3</td><td>Repeat 8</td><td>Repeat 6</td></tr><tr><td>Cow Bell</td><td>Blip</td><td>Tone</td><td>Bass Tone</td><td>Note Shuffle</td><td>Feedback</td><td>Parameter LFO</td><td>Vibrato</td></tr></table> © jampira.com 2018	sound 1-16				effect 1-16				1. bass drum	9. hand clap	17. low sample rate	9. stutter 4	1. low sample rate	9. stutter 4	17. low sample rate	9. stutter 4	2. snare drum	10. click	2. distortion	10. stutter 3	2. distortion	10. stutter 3	2. distortion	10. stutter 3	3. closed hi-hat	11. low tom	3. bit crush	11. repeat 8	3. bit crush	11. repeat 8	3. bit crush	11. repeat 8	4. open hi-hat	12. hi tom	4. delay	12. repeat 6	4. delay	12. repeat 6	4. delay	12. repeat 6	5. synthesized snare	13. cow bell	5. lowpass filter	13. note shuffle	5. lowpass filter	13. note shuffle	5. lowpass filter	13. note shuffle	6. sticks	14. blip	6. lowpass sweep	14. feedback	6. lowpass sweep	14. feedback	6. lowpass sweep	14. feedback	7. cymbal	15. tone	7. hipass filter	15. parameter lfo	7. hipass filter	15. parameter lfo	7. hipass filter	15. parameter lfo	8. noise	16. bass tone	8. hipass sweep	16. vibrato	8. hipass sweep	16. vibrato	8. hipass sweep	16. vibrato	PO-12 Rhythm Sounds				PO-12 Rhythm Effects				Bass Drum	Snare Drum	Closed Hi-hat	Open Hi-hat	Low Sample Rate	Distortion	Bit Crush	Delay	Synthesized Snare	Sticks	Cymbal	Noise	Lowpass Filter	Lowpass Sweep	Hipass Filter	Hipass Sweep	Hand Clap	Click	Low Tom	Hi Tom	Stutter 4	Stutter 3	Repeat 8	Repeat 6	Cow Bell	Blip	Tone	Bass Tone	Note Shuffle	Feedback	Parameter LFO	Vibrato	Programmable Rhythm Synthesizer Notes: NO Drumkit: YES (buttons 1-16) Poliphony: 6 — User Guide Old school Pocket Operators revisited Red Means Recording PO-12 Rhythm Introduction Hacking the PO
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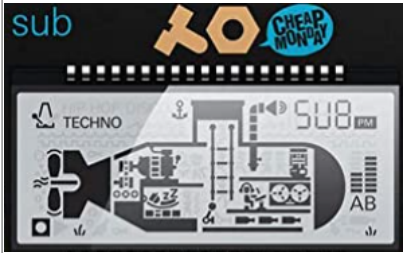
Programmable Rhythm Synthesizer

Notes: NO

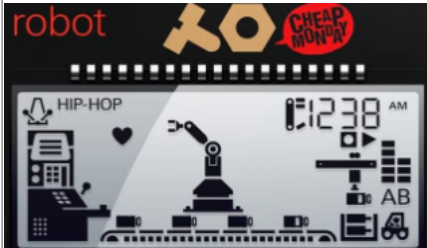
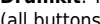
Drumkit: YES (buttons 1-16)

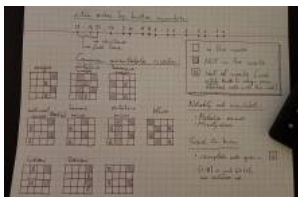
Poliphony: 6

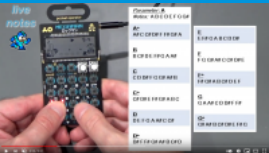
[User Guide](#)
[Old school Pocket Operators revisited](#)
[Red Means Recording](#)
[PO-12 Rhythm Introduction](#)
[Hacking the PO](#)

Name	Poliphony	*	Function	Resources																
PO-14 Sub 	1+1	key o-0	LFO (12), LPF (5,6), HPF (7,8), Delay (4), Vibrato (16), Distortion (2), Stutter (9,10), Feedback (11), Low sample rate (1), Bit crush (3), Octave up (13), Octave Down (14), Half note up (15) sound 1-15 assorted bass synthesis ranging from FM, phase distortion, wavetable to physical modeled string. sound 16 micro drum machine with 16 sampled sounds in write mode, set sound by holding any step and turn knob A. n 136 will be displayed in the upper right corner of the screen to indicate selected sound. effect 1-16 1. low sample rate 2. distortion 3. bit crush 4. delay 5. lowpass filter 6. lowpass sweep 7. hipass filter 8. hipass sweep 9. stutter 4 10. stutter 3 11. feedback 12. parameter lfo 13. octave up 14. octave down 15. half note up 16. vibrato PO-14 Sub Effects <table><tr><td>Low Sample Rate</td><td>Distortion</td><td>Bit Crush</td><td>Delay</td></tr><tr><td>Lowpass Filter</td><td>Lowpass Sweep</td><td>Hipass Filter</td><td>Hipass Sweep</td></tr><tr><td>Stutter 4</td><td>Stutter 3</td><td>Feedback</td><td>Parameter LFO</td></tr><tr><td>Octave Up</td><td>Octave Down</td><td>Half Note Up</td><td>Vibrato</td></tr></table>	Low Sample Rate	Distortion	Bit Crush	Delay	Lowpass Filter	Lowpass Sweep	Hipass Filter	Hipass Sweep	Stutter 4	Stutter 3	Feedback	Parameter LFO	Octave Up	Octave Down	Half Note Up	Vibrato	Programmable Bass Synthesizer Notes: YES, c0-d2 Drumkit: YES (button 16) Poliphony:  — Old school Pocket Operators revisited Red Means Recording PO-14 Sub Introduction PO-14 Cheat Sheet Hacking the PO
Low Sample Rate	Distortion	Bit Crush	Delay																	
Lowpass Filter	Lowpass Sweep	Hipass Filter	Hipass Sweep																	
Stutter 4	Stutter 3	Feedback	Parameter LFO																	
Octave Up	Octave Down	Half Note Up	Vibrato																	
PO-16 Factory 	1+1	key o-0	LFO (12), LPF (5,6), HPF (7,8), Delay (4), Vibrato (16), Distortion (2), Stutter (9,10), Feedback (11), Low sample rate (1), Bit crush (3), Octave up (13), Octave Down (14), Half note up (15) sound 1-15 assorted lead synthesis ranging from FM, subtractive synthesis, wavetable to physical modeled string. sound 16 micro drum machine with 16 sampled sounds in write mode, set sound by holding any step and turn knob A. n 136 will be displayed in the upper right corner of the screen to indicate selected sound. effect 1-16 1. low sample rate 2. distortion 3. bit crush 4. delay 5. lowpass filter 6. lowpass sweep 7. hipass filter 8. hipass sweep 9. stutter 4 10. stutter 3 11. feedback 12. parameter lfo 13. octave up 14. octave down 15. half note up 16. vibrato PO-16 Factory Effects <table><tr><td>Low Sample Rate</td><td>Distortion</td><td>Bit Crush</td><td>Delay</td></tr><tr><td>Lowpass Filter</td><td>Lowpass Sweep</td><td>Hipass Filter</td><td>Hipass Sweep</td></tr><tr><td>Stutter 4</td><td>Stutter 3</td><td>Feedback</td><td>Parameter LFO</td></tr><tr><td>Octave Up</td><td>Octave Down</td><td>Half Note Up</td><td>Vibrato</td></tr></table>	Low Sample Rate	Distortion	Bit Crush	Delay	Lowpass Filter	Lowpass Sweep	Hipass Filter	Hipass Sweep	Stutter 4	Stutter 3	Feedback	Parameter LFO	Octave Up	Octave Down	Half Note Up	Vibrato	Programmable Melody Synthesizer Notes: YES, c3-d5 Chords: YES Drumkit: YES (button 16) Poliphony:  — Red Means Recording PO-16 Factory Introduction Old school Pocket Operators revisited PO-16 Play Styles PO-16 Chords Figured out the PO-16 Chords Hacking the PO
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PO-20 Arcade 	1+1	chord	LPF (5,6,7), HPF (7,8), solo chords (1), solo chords+lead (2), solo drums (3), solo drums+bass (4), fill-in (9,10), retrigger (11,12), glitch (13,14), blinds (15), rising arpeggio (16) <table><tr><th>sound 1-8</th><th>chord 1-8</th><th>effect 1-8</th></tr><tr><td>1 bass</td><td>1 dm</td><td>1 solo chords</td></tr><tr><td>2 bass drums</td><td>2 am</td><td>2 solo chords + lead</td></tr><tr><td>3 snare drum</td><td>3 sus</td><td>3 solo drums</td></tr><tr><td>4 hi-hat</td><td>4 F</td><td>4 solo drums + bass</td></tr><tr><td>5 tom</td><td>5 F</td><td>5 lowpass slow sweep</td></tr><tr><td>6 gap</td><td>6 G</td><td>6 lowpass fast sweep</td></tr><tr><td>7 hardsync</td><td>7 C/G</td><td>7 retrigger filter</td></tr><tr><td>8 noise fx</td><td>8 E/G#</td><td>8 retrigger</td></tr></table><table><tr><th colspan="4">PO-20 Arcade Sounds</th></tr><tr><td>Bass</td><td>Bass Drum</td><td>Snare Drum</td><td>Hi-hat</td></tr><tr><td>Tom</td><td>Blip</td><td>Hardsync</td><td>Noise FX</td></tr><tr><td>Arpeggio</td><td>Melodic Arpeggio</td><td>Falling Arpeggio</td><td>Octave Arpeggio</td></tr><tr><td>Lead</td><td>Vibrato</td><td>Portamento</td><td>Echo</td></tr></table><table><tr><th colspan="4">PO-20 Arcade Chords</th></tr><tr><td>Dm</td><td>Em</td><td>Esus</td><td>E</td></tr><tr><td>F</td><td>G</td><td>C/G</td><td>E/G#</td></tr><tr><td>Am</td><td>C/A</td><td>Dm/A</td><td>D/A</td></tr><tr><td>A</td><td>B/A</td><td>C</td><td>D</td></tr></table><table><tr><th colspan="4">PO-20 Arcade Effects</th></tr><tr><td>Solo Chords</td><td>Solo Chords+Lead</td><td>Solo Drums</td><td>Solo Drums+Bass</td></tr><tr><td>Lowpass Slow Sweep</td><td>Lowpass Fast Sweep</td><td>Hi-pass Filter</td><td>Hi-pass Sweep</td></tr><tr><td>Fill-in</td><td>Fill-in (fast)</td><td>Retrigger</td><td>Retrigger (fast)</td></tr><tr><td>Glitch</td><td>Glitch (fast)</td><td>Blinds</td><td>Rising Arpeggio</td></tr></table> PO-20 chords <table><tr><th>A Minor</th><th>C Major</th><th>E Major</th></tr><tr><td>iv v</td><td>ii iii</td><td>I sus4 IVsus2 I</td></tr><tr><td>VI VII</td><td>IV V</td><td>iii #5 / I</td></tr><tr><td>i i7 iv</td><td>vi vi7 ii</td><td>IV V7</td></tr><tr><td></td><td>I</td><td></td></tr></table><table><tr><th>E Minor</th><th>G Major</th><th>D Major</th></tr><tr><td>i</td><td>vi</td><td>ii Vsus2</td></tr><tr><td>III III6 /VI</td><td>I I6 /IV</td><td>IV IV6</td></tr><tr><td>iv iv7 IV64 /VII</td><td>ii ii7 II64 /V</td><td>iii #5 /I</td></tr><tr><td>VI VII</td><td>IV V</td><td>V</td></tr></table><table><tr><th>D minor</th><th>F Major</th><th>A Major</th></tr><tr><td>i</td><td>vi</td><td>Vsus4 V</td></tr><tr><td>III VII</td><td>I V</td><td></td></tr><tr><td>v v7 i</td><td>iii iii7 vi</td><td>I 64 VII5</td></tr><tr><td>VII</td><td>V</td><td>I Isus4 IV</td></tr></table> Esus = Esus4, Asus2, B7sus4 C/G = G6, C E/G# = G#m#5, E C/A = Am7, C Dm/A = Asus4#5, Dm D/A = A6sus4, F#m#5, D B/A = Asus2b5, B7 <table><tr><td>dm</td><td>Em</td><td>Esus</td><td>E</td></tr><tr><td>F</td><td>G</td><td>C/G</td><td>E/G#</td></tr><tr><td>am</td><td>C/A</td><td>Dm/A</td><td>D/A</td></tr><tr><td>A</td><td>B/A</td><td>C</td><td>D</td></tr></table>	sound 1-8	chord 1-8	effect 1-8	1 bass	1 dm	1 solo chords	2 bass drums	2 am	2 solo chords + lead	3 snare drum	3 sus	3 solo drums	4 hi-hat	4 F	4 solo drums + bass	5 tom	5 F	5 lowpass slow sweep	6 gap	6 G	6 lowpass fast sweep	7 hardsync	7 C/G	7 retrigger filter	8 noise fx	8 E/G#	8 retrigger	PO-20 Arcade Sounds				Bass	Bass Drum	Snare Drum	Hi-hat	Tom	Blip	Hardsync	Noise FX	Arpeggio	Melodic Arpeggio	Falling Arpeggio	Octave Arpeggio	Lead	Vibrato	Portamento	Echo	PO-20 Arcade Chords				Dm	Em	Esus	E	F	G	C/G	E/G#	Am	C/A	Dm/A	D/A	A	B/A	C	D	PO-20 Arcade Effects				Solo Chords	Solo Chords+Lead	Solo Drums	Solo Drums+Bass	Lowpass Slow Sweep	Lowpass Fast Sweep	Hi-pass Filter	Hi-pass Sweep	Fill-in	Fill-in (fast)	Retrigger	Retrigger (fast)	Glitch	Glitch (fast)	Blinds	Rising Arpeggio	A Minor	C Major	E Major	iv v	ii iii	I sus4 IVsus2 I	VI VII	IV V	iii #5 / I	i i7 iv	vi vi7 ii	IV V7		I		E Minor	G Major	D Major	i	vi	ii Vsus2	III III6 /VI	I I6 /IV	IV IV6	iv iv7 IV64 /VII	ii ii7 II64 /V	iii #5 /I	VI VII	IV V	V	D minor	F Major	A Major	i	vi	Vsus4 V	III VII	I V		v v7 i	iii iii7 vi	I 64 VII5	VII	V	I Isus4 IV	dm	Em	Esus	E	F	G	C/G	E/G#	am	C/A	Dm/A	D/A	A	B/A	C	D	Programmable Arcade Synthesizer Notes: NO (only pitch variations) Chords: YES Drumkit: NO Poliphony:  — 16 independent sounds: 1 bass, 7 drums, 16 chords y 4 melodic sounds. Old school Pocket Operators revisited Red Means Recording PO-20 Arcade Introduction UPDATED: PO-20 chords & keys
sound 1-8	chord 1-8	effect 1-8																																																																																																																																																						
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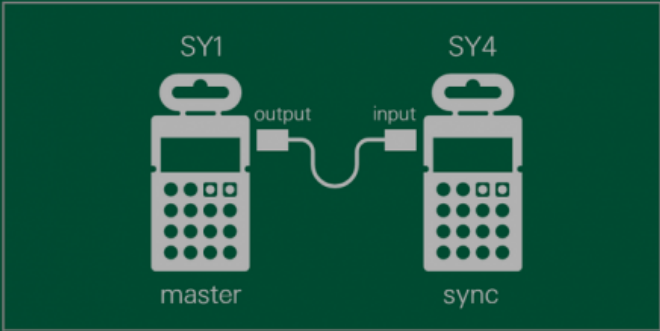
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PO-24 Office 	6	solo	LPF (5,6), HPF (7,8), aliasing (1), overdrive (2), repeat (3,4), Distortion (9,10), Retrigger (11,12), glitch (13,14), blinds (15), noise (16) <table><tr><th colspan="4">sound 1-16</th><th colspan="4">effect 1-16</th></tr><tr><td>1. 5.25" floppy disk</td><td>9. bass drum</td><td>1. aliasing</td><td>9. distort low</td></tr><tr><td>2. 3.5" drive eject</td><td>10. pc beeper</td><td>2. overdrive</td><td>10. distort high</td></tr><tr><td>3. 3.5" floppy disk</td><td>11. hardsync tone</td><td>3. repeat 4</td><td>11. retrigger</td></tr><tr><td>4. keyboard</td><td>12. hardsync noise</td><td>4. repeat 2</td><td>12. retrigger(fast)</td></tr><tr><td>5. matrix printer</td><td>13. ring modulation</td><td>5. lowpass filter</td><td>13. glitch</td></tr><tr><td>6. joystick</td><td>14. bass</td><td>6. lowpass sweep</td><td>14. glitch (fast)</td></tr><tr><td>7. mouse click</td><td>15. glitch fx</td><td>7. hpass filter</td><td>15. blinds</td></tr><tr><td>8. toggle switch</td><td>16. noise fx</td><td>8. hpass sweep</td><td>16. noise effect</td></tr></table><table><tr><th colspan="4">PO-24 Office Sounds</th><th colspan="4">PO-24 Office Effects</th></tr><tr><td>5.25" Floppy Disk</td><td>3.5" Drive Eject</td><td>3.5" Floppy Disk</td><td>Keyboard</td><td>Aliasing</td><td>Overdrive</td><td>Repeat 4</td><td>Repeat 2</td></tr><tr><td>Matrix Printer</td><td>Joystick</td><td>Mouse Click</td><td>Toggle Switch</td><td>Lowpass Filter</td><td>Lowpass Sweep</td><td>Hipass Filter</td><td>Hipass Sweep</td></tr><tr><td>Bass Drum</td><td>PC Beeper</td><td>Hardsync Tone</td><td>Hardsync Noise</td><td>Distort Low</td><td>Distort High</td><td>Retrigger</td><td>Retrigger (fast)</td></tr><tr><td>Ring Modulation</td><td>Bass</td><td>Glitch FX</td><td>Noise FX</td><td>Glitch</td><td>Glitch (fast)</td><td>Blinds</td><td>Noise Effect</td></tr></table> © sepiars am 2024	sound 1-16				effect 1-16				1. 5.25" floppy disk	9. bass drum	1. aliasing	9. distort low	2. 3.5" drive eject	10. pc beeper	2. overdrive	10. distort high	3. 3.5" floppy disk	11. hardsync tone	3. repeat 4	11. retrigger	4. keyboard	12. hardsync noise	4. repeat 2	12. retrigger(fast)	5. matrix printer	13. ring modulation	5. lowpass filter	13. glitch	6. joystick	14. bass	6. lowpass sweep	14. glitch (fast)	7. mouse click	15. glitch fx	7. hpass filter	15. blinds	8. toggle switch	16. noise fx	8. hpass sweep	16. noise effect	PO-24 Office Sounds				PO-24 Office Effects				5.25" Floppy Disk	3.5" Drive Eject	3.5" Floppy Disk	Keyboard	Aliasing	Overdrive	Repeat 4	Repeat 2	Matrix Printer	Joystick	Mouse Click	Toggle Switch	Lowpass Filter	Lowpass Sweep	Hipass Filter	Hipass Sweep	Bass Drum	PC Beeper	Hardsync Tone	Hardsync Noise	Distort Low	Distort High	Retrigger	Retrigger (fast)	Ring Modulation	Bass	Glitch FX	Noise FX	Glitch	Glitch (fast)	Blinds	Noise Effect	Programmable Noise Synthesizer Notes:  Fix Me! Drumkit:  Fix Me! Poliphony:  Fix Me! Old school Pocket Operators revisited Red Means Recording PO-24 Office Introduction
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PO-28 Robot 	1+1	glide	Distort/retrigger, repeat, LPF, HPF, Glitch/noise <table><tr><th colspan="4">sound 1-16</th><th colspan="4">effect 1-16</th></tr><tr><td>1. LFO pulse wave</td><td>9. LFO pulse wave</td><td>1. distorted filter</td><td>9. fill-in</td></tr><tr><td>2. pulse wave</td><td>10. pulse wave</td><td>2. distorted sweep</td><td>10. fill-in (fast)</td></tr><tr><td>3. mixed wave</td><td>11. mixed wave</td><td>3. repeat 4</td><td>11. retrigger</td></tr><tr><td>4. triangle wave</td><td>12. triangle wave</td><td>4. repeat 2</td><td>12. retrigger(fast)</td></tr><tr><td>5. echo</td><td>13. echo</td><td>5. lowpass slow filter</td><td>13. glitch</td></tr><tr><td>6. arpeggio</td><td>14. arpeggio</td><td>6. lowpass fast sweep</td><td>14. glitch (fast)</td></tr><tr><td>7. vibrato</td><td>15. vibrato</td><td>7. hpass filter</td><td>15. blinds</td></tr><tr><td>8. 4-bit triangle</td><td>16. micro drum kit</td><td>8. hpass sweep</td><td>16. noise effect</td></tr></table><table><tr><th colspan="4">PO-28 Robot Sounds</th><th colspan="4">PO-28 Robot Effects</th></tr><tr><td>LFO Pulse Wave</td><td>Pulse Wave</td><td>Mixed Wave</td><td>Triangle Wave</td><td>Distorted Filter</td><td>Distorted Sweep</td><td>Repeat 4</td><td>Repeat 2</td></tr><tr><td>Echo</td><td>Arpeggio</td><td>Vibrato</td><td>4-bit Triangle</td><td>Lowpass Slow Filter</td><td>Lowpass Fast Sweep</td><td>Hipass Filter</td><td>Hipass Sweep</td></tr><tr><td>LFO Pulse Wave</td><td>Pulse Wave</td><td>Mixed Wave</td><td>Triangle Wave</td><td>Fill-in</td><td>Fill-in (fast)</td><td>Retrigger</td><td>Retrigger (fast)</td></tr><tr><td>Echo</td><td>Arpeggio</td><td>Vibrato</td><td>Micro Drum Kit</td><td>Glitch</td><td>Glitch (fast)</td><td>Blinds</td><td>Noise Effect</td></tr></table> © sepiars am 2024	sound 1-16				effect 1-16				1. LFO pulse wave	9. LFO pulse wave	1. distorted filter	9. fill-in	2. pulse wave	10. pulse wave	2. distorted sweep	10. fill-in (fast)	3. mixed wave	11. mixed wave	3. repeat 4	11. retrigger	4. triangle wave	12. triangle wave	4. repeat 2	12. retrigger(fast)	5. echo	13. echo	5. lowpass slow filter	13. glitch	6. arpeggio	14. arpeggio	6. lowpass fast sweep	14. glitch (fast)	7. vibrato	15. vibrato	7. hpass filter	15. blinds	8. 4-bit triangle	16. micro drum kit	8. hpass sweep	16. noise effect	PO-28 Robot Sounds				PO-28 Robot Effects				LFO Pulse Wave	Pulse Wave	Mixed Wave	Triangle Wave	Distorted Filter	Distorted Sweep	Repeat 4	Repeat 2	Echo	Arpeggio	Vibrato	4-bit Triangle	Lowpass Slow Filter	Lowpass Fast Sweep	Hipass Filter	Hipass Sweep	LFO Pulse Wave	Pulse Wave	Mixed Wave	Triangle Wave	Fill-in	Fill-in (fast)	Retrigger	Retrigger (fast)	Echo	Arpeggio	Vibrato	Micro Drum Kit	Glitch	Glitch (fast)	Blinds	Noise Effect	Programmable Performance Synthesizer Notes:  Fix Me! Drumkit: YES (button 16) Poliphony:  Fix Me! Old school Pocket Operators revisited Red Means Recording PO-28 Robot Introduction PO-28 robot hidden features
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Name	Poliphony	*	Function	Resources																				
PO-33 K.O. 	4	record	effect 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 quantize 14. retrigger pattern 15. reverse 16. no effect <table><tr><th colspan="2">PO-33 K.O.I</th><th colspan="2">Effects</th></tr><tr><td>Loop 16</td><td>Loop 12</td><td>Loop Short</td><td>Loop Shorter</td></tr><tr><td>Unison</td><td>Unison Low</td><td>Octave Up</td><td>Octave Down</td></tr><tr><td>Stutter 4</td><td>Stutter 3</td><td>Scratch</td><td>Scratch Fast</td></tr><tr><td>6 / 8 Quantize</td><td>Retrigger Pattern</td><td>Reverse</td><td>No Effect</td></tr></table> 	PO-33 K.O.I		Effects		Loop 16	Loop 12	Loop Short	Loop Shorter	Unison	Unison Low	Octave Up	Octave Down	Stutter 4	Stutter 3	Scratch	Scratch Fast	6 / 8 Quantize	Retrigger Pattern	Reverse	No Effect	Micro sampler Notes:  Fix Me! Drumkit:  Fix Me! Poliphony: 4 — PO-33 K.O! sampler quickstart Red Means Recording PO-33 Introduction PO-33 K.O! Hidden Features and Extended Manual PO-33 cheat sheet and resources Available scales on PO-33 K.O Discover PO-33 scale PO-33 cheat sheet and resources
PO-33 K.O.I		Effects																						
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6 / 8 Quantize	Retrigger Pattern	Reverse	No Effect																					
PO-35 Speak 	1+1	record	voice 1-8 1. neutral 2. autotune 3. retro 4. noise 5. robot 6. fifth 7. vocoder 8. synth 9. stutter sweep 10. trance gate 11. half rate 12. 16 bar build up 13. 6/8 quantize 14. retrigger pattern 15. reverse 16. no effect <table><tr><th colspan="2">PO-35 Speak</th><th colspan="2">Effects</th></tr><tr><td>Neutral</td><td>Autotune</td><td>Retro</td><td>Noise</td></tr><tr><td>Robot</td><td>Fifth</td><td>Vocoder</td><td>Synth</td></tr><tr><td>Stutter Sweep</td><td>Trance Gate</td><td>Half Rate</td><td>16 Bar Build Up</td></tr><tr><td>6 / 8 Quantize</td><td>Retrigger Pattern</td><td>Reverse</td><td>No Effect</td></tr></table> 	PO-35 Speak		Effects		Neutral	Autotune	Retro	Noise	Robot	Fifth	Vocoder	Synth	Stutter Sweep	Trance Gate	Half Rate	16 Bar Build Up	6 / 8 Quantize	Retrigger Pattern	Reverse	No Effect	Vocal Synthesizer Notes: YES (c2-b3) Scales: YES, per pattern (maj, min, blues, arab) Drumkit: YES (button 16) Poliphony: 2 — PO-35 Speak in depth(draft) Red Means Recording PO-35 Speak Introduction PO-35 speak and PO-137 Hidden Features and Extended Manual True Cuckoo PO-35 Speak Tutorial po-35 speak and po-137 Hidden features and Extended manual
PO-35 Speak		Effects																						
Neutral	Autotune	Retro	Noise																					
Robot	Fifth	Vocoder	Synth																					
Stutter Sweep	Trance Gate	Half Rate	16 Bar Build Up																					
6 / 8 Quantize	Retrigger Pattern	Reverse	No Effect																					

Name	Poliphony	*	Function	Resources
PO-128 Megaman 	2+1	glide	sound 1-16 1. LFO pulse wave 2. pulse wave 3. mixed wave 4. triangle wave 5. 4-bit triangle 6. square 7. vibrato 8. echo 9. LFO pulse wave 10. pulse wave 11. mixed wave 12. triangle wave 13. 4-bit triangle 14. square 15. vibrato 16. macro drum kit effect 1-16 1. distorted filter 2. distorted sweep 3. repeat 4 4. repeat 2 5. lowpass slow sweep 6. lowpass fast sweep 7. hpass filter 8. hpass sweep 9. tilt 10. filter (fast) 11. retrigger 12. retrigger (fast) 13. glitch 14. glitch (fast) 15. birds 16. no effect 	Programmable Performance Synthesizer Notes: YES Scales: Chromatic, per sound Drumkit: Fix Me! Poliphony: Fix Me! — Edición especial de la PO-28 Robot creada en colaboración con Capcom Co., Ltd., una empresa japonesa desarrolladora y distribuidora de videojuegos. Create track with PO-128 Megaman How to quickly change notes and keys on a PO-128 MegaMan - transposing tips!
PO-133 Street Fighter 			effect 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 quantize 14. retrigger pattern 15. reverse 16. no effect	Micro sampler Notes: Fix Me! Drumkit: Fix Me! Poliphony: Fix Me! — Edición especial de la PO-33 K.O. creada en colaboración con Capcom Co., Ltd., una empresa japonesa desarrolladora y distribuidora de videojuegos.
PO-137 Rick and Morty 			voice 1-8 1. neutral 2. autotune 3. retro 4. noise 5. robot 6. fifth 7. vocoder 8. synth 9. stutter sweep 10. trance gate 11. half rate 12. 16 bar build up 13. 6/8 quantize 14. retrigger pattern 15. reverse 16. no effect	Vocal Synthesizer Notes: Fix Me! Drumkit: Fix Me! Poliphony: Fix Me! — PO-35 speak and PO-137 Hidden Features and Extended Manual

Sync Scenarios

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).

sync modes

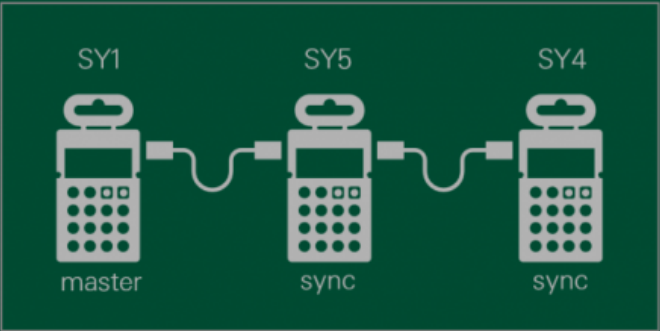


hold funct and press bpm on master unit to toggle sync modes. press repeatedly to toggle between different modes.

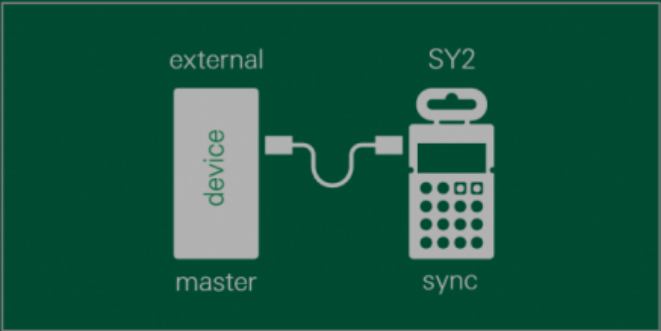
ID	input	output
SY0	stereo	stereo
SY1	stereo	mono/sync
SY2	sync	stereo
SY3	sync	mono/sync
SY4	mono/sync	stereo
SY5	mono/sync	mono/sync

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

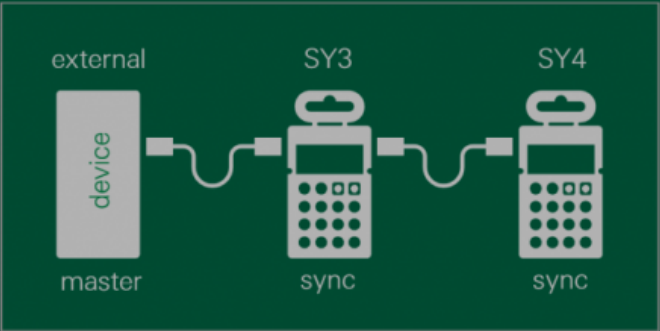
sync scenarios



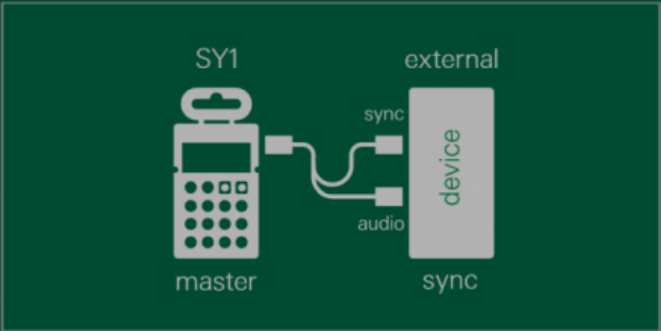
example A: sync three pocket operator units.



example B: sync external device such as volca, iPhone, computer or synckontrol to PO-12.



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



example D: sync PO-12 to an external device.

References

- [Teenage Engineering User Guides](#)
- [Teenage Engineering Pocket Operator Video Tutorials](#)

- [Teenage Engineering Pocket Operator Online lessons](#)
- [A wall of sound in your pocket: the tale of Teenage Engineering's Pocket Operator](#)
- [All the Pocket Operators! - Ultimate Overview](#)
- [Pocket Operator Charts](#)
- [Hacking the PO](#)

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