

Teenage Engineering Pocket Operators | £49 each

Teenage Engineering products always generate much excitement. **Bruce Aisher** fills his pockets to see what all the fuss is about

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WHAT IS IT?

A range of portable synths and drum boxes that tip a nod to hand-held computer games from yesteryear

CONTACT

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HIGHLIGHTS

- 1 The price
- 2 Those animated displays
- 3 Sync capabilities



Last year Teenage Engineering got tech-nerds and hipsters alike palpitating with deconstructed, retro-edged, yearning on the announcement of their three upcoming calculator-style synths designed in collaboration with Swedish clothing brand Cheap Monday. Besides the question of what a company that makes jeans has in common with a cutting-edge audio company, most focus was centred on the unusual

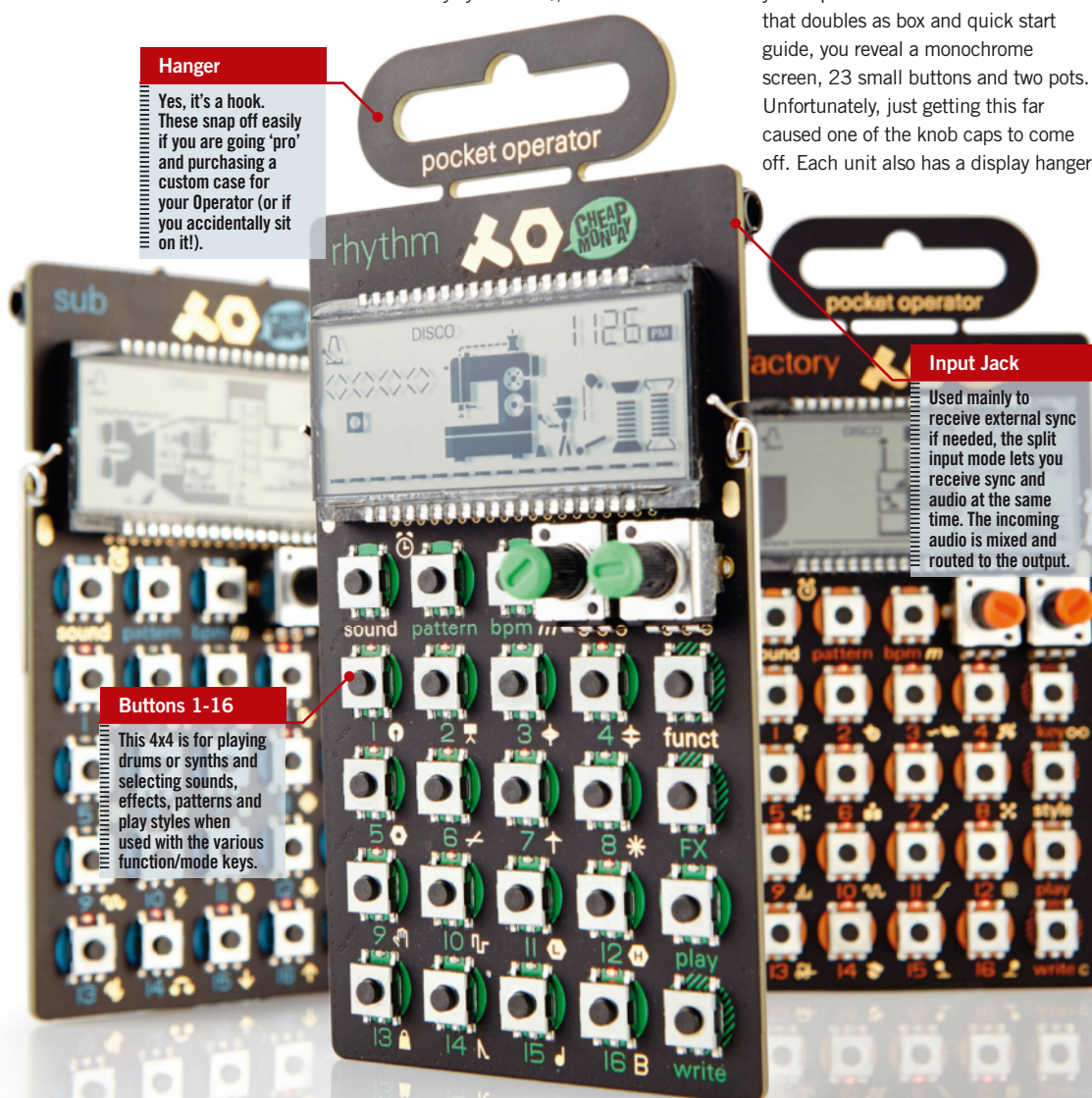
display that featured as a centrepiece to these new synths. The next question was usually whether they would prove to be amusing toys that happened to make a noise, or cheap-and-cheerful drum machines and synths that could be used to create worthwhile music. We'll revisit that question later.

The Pocket Operators include Rhythm (a drum synthesizer), Sub (a bassline synthesizer) and Factory (a melody synthesizer), with the latter two

harnessing synthesis methods ranging from FM and subtractive to wavetable and physical modelling.

I'm the operator...

The Pocket Operators come in a similar deconstructed packaging to the TE Oplab unit looked at in *FM* last year. In other words, there's no case – though these are available as an optional extra. Each PO is palm-sized and, once you've peeled off the cardboard shell that doubles as box and quick start guide, you reveal a monochrome screen, 23 small buttons and two pots. Unfortunately, just getting this far caused one of the knob caps to come off. Each unit also has a display hanger



Hanger

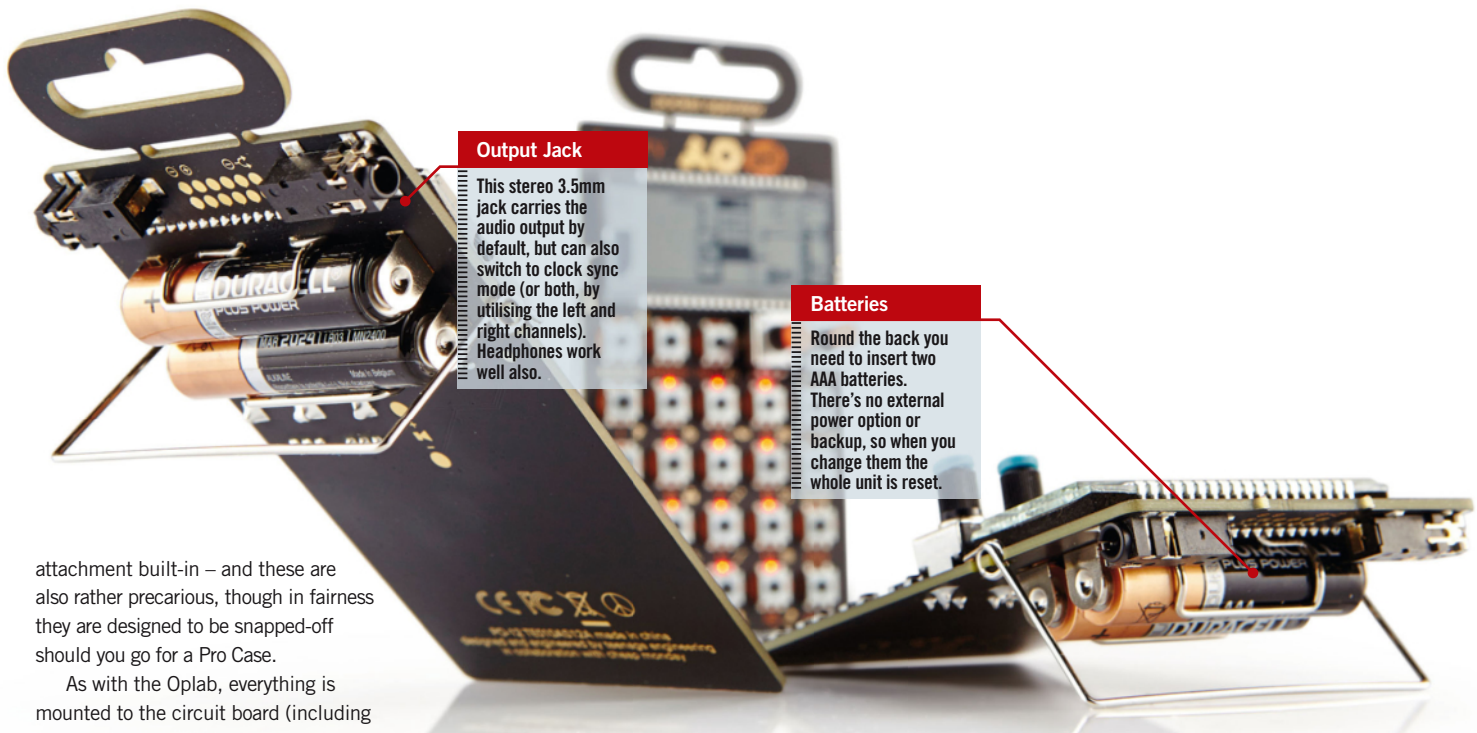
Yes, it's a hook. These snap off easily if you are going 'pro' and purchasing a custom case for your Operator (or if you accidentally sit on it!).

Buttons 1-16

This 4x4 is for playing drums or synths and selecting sounds, effects, patterns and play styles when used with the various function/mode keys.

Input Jack

Used mainly to receive external sync if needed, the split input mode lets you receive sync and audio at the same time. The incoming audio is mixed and routed to the output.

**Output Jack**

This stereo 3.5mm jack carries the audio output by default, but can also switch to clock sync mode (or both, by utilising the left and right channels). Headphones work well also.

Batteries

Round the back you need to insert two AAA batteries. There's no external power option or backup, so when you change them the whole unit is reset.

attachment built-in – and these are also rather precarious, though in fairness they are designed to be snapped-off should you go for a Pro Case.

As with the Oplab, everything is mounted to the circuit board (including the rear panel AAA battery holders and 3.3mm ins and outs). The screen of the Pocket Operators is centred around a particular visual theme – a sewing machine (PO-12 Rhythm), submarine (PO-14 Sub) and factory and crane (PO-16 Factory) – which are reminiscent of Nintendo's early-'80s Game and Watch hand-held games. In each scenario different elements move and respond to button presses when playing back patterns. There are a few parts of the display which provide more direct visual feedback (including tempo and the positions of the two pot controls), but everything else has to rely on a three-digit display area at the top right of the screen. So, from the outset the focus appears to be on fun rather

Synchronicity

Despite their size, the Pocket Operators offer quite a bit of flexibility when it comes to tempo synchronisation. The different sync modes are accessed by using the function/key button and pressing 'bpm' to increment through the six options.

The simplest scenario utilises one PO as the Master plugged into a Slave unit via a stereo 3.5mm jack-to-jack

cable. In this situation a tempo pulse is sent from the Master unit down the left channel, while audio goes down the right (to be mixed with the second PO's output). This allows you to use just one audio out (from the Slave unit) to carry all the sound to your headphones or amp etc. All three (or more) can be connected in this manner.

Should you wish to lock any (or all) of the

POs to an external source such as a Korg Volca or SyncControl, there is an option for receiving sync only on the jack input of the POs. This also allows you to run a click pulse from a DAW track via your audio interface to the Operators.

Like any simple clock pulse sync system, there is no start/stop linking, but this allows for more creative possibilities.

SPECS**PO-12**

Real synthesized and sampled drum sounds

PO-14/16

Multiple real synthesizer engines, including FM, subtractive synthesis, wavetable and physical modelled string
16 punch-in bass oriented or arpeggio and chord play styles

All

16 punch-in effects including delay, bitcrusher and filters
Parameter locks
Auto compressor and hardware limiter
Step multiplier and fill-ins
16-step sequencer – 16 patterns with chaining
Clock and alarm clock
Jam sync with audio through 3.5mm audio out/in
Animated LCD display
Folding stand
2 year standby time

For the PO-12, think the Roland TR series mixed with a Linn LM-1 or Oberheim DMX, but more gritty

than functionality. With this and the cost in mind, it is understandable that the LCDs are not backlit, and in practice this wasn't an issue.

The Rhythm

I decided to dive in with PO-12, the Rhythm section of the family. After plugging in the batteries – which apparently can keep the unit on standby for two years – it was time to turn the unit on. Except that there is no on/off switch, so it's merely a question of diving straight in, having a play and then leaving the unit to drop into standby mode when you've finished

(which keeps the LCD screen on, but LEDs off). There's no external power option here, though modding one yourself wouldn't be too difficult.

Pressing the button marked 'play' was simple enough and set the beats in motion. However, it became pretty clear from the start that I needed to run through the quick start guide, and refer back to the overview schematic, and then dive into the manual. There are quite a few combination key presses and knob-twists to remember in order to get to all the features on offer.

In essence the PO-12 offers 16 sounds (each with two adjustable

parameters) that are triggered by one of the 16 (16-step) patterns. Patterns can be recorded live (and are automatically quantised), or in

step-mode, where individual steps can be turned on or off for each sound via a 4x4 grid (buttons 1 to 16).
The sounds in the PO-12 lean very heavily towards those found on drum machines of the early '80s. This was a time when both analogue synthesis and limited bit-depth sampling techniques were used. So think of the Roland TR series mixed with a Linn LM-1 or Oberheim DMX, but altogether more gritty and lo-fi – there's a lot of digital aliasing on some sounds. Whilst I wouldn't say this little box has class, it does certainly have character, though you will need to plug it into a decent

sound system if you want to hear more than the high-frequency, biscuit-tin soundalike, from the built-in speaker. That said, the tiny onboard speaker is a marvel of concealed engineering.

Holding the Sound button while pressing one of the numeric buttons,

selects the relevant drum sound for auditioning or step-entry. Here it's possible to see what the two knobs offer in terms of sound editing. The most common parameters are pitch and decay, but in some cases there is more going on under the hood –

bit-depth reduction, doubling and snappiness being a few.

I was initially somewhat confused, as making tweaks when a pattern was paused did not make any difference as soon as Play was pressed. It turns out that parameter automation is permanently engaged, so the Write button needs to be pressed while making any sound edits for them to become permanent. This is much like a permanently engaged version of Korg's fabled Motion Sequencing, introduced on their earlier Electribes – and still in use on the Volca range.

Now throw in 16 different (non-editable) effects that can be switched between on-the-fly and it soon becomes apparent that the Pocket Operators are capable of conjuring up some, occasionally inspired, sonic madness with ease. Like the other sound parameters, the effects selection is automated (and is engaged even when Write isn't pressed). The final piece of the picture here is the so-called 'step multiplier' that allows you to add custom glitch-style re-triggers (2, 4, 8 or 16) to any step in a particular sound's pattern (unlike the globally applied stutter effects).

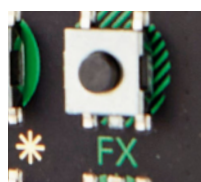
Once you get a handle on these additional keypress combos, and some of their underlying operational quirks, they add another level of interest to even the most lacklustre beat. Patterns can be copied to other slots and chain

Automatic Fun

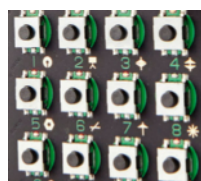
You can automate many of the sound and playback settings...



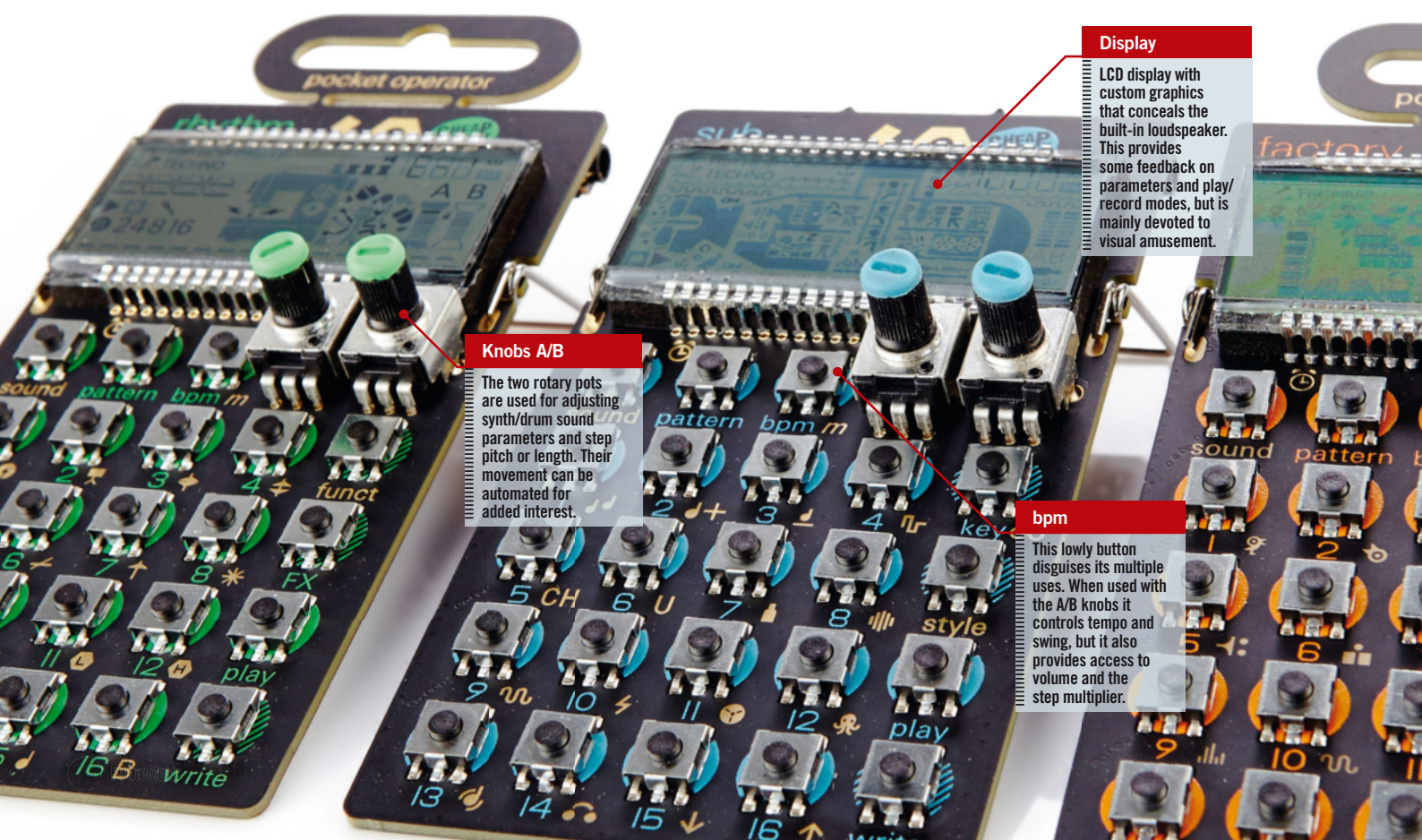
> Sound parameters for each drum, bass or lead can be tweaked and recorded via the knobs. Pitch and decay are most common, but there are more complex varieties too.



> Drop-in effects selection, including delay, filter, distortion and stutter is recorded and recalled using the FX button. The tempo-synced filter sweeps are great.



> Play styles for bass and lead lines can be added in real time for each step of a pattern via the keypad. Handy for adding variety to your loops and lines.



Display

LCD display with custom graphics that conceals the built-in loudspeaker. This provides some feedback on parameters and play/record modes, but is mainly devoted to visual amusement.

Knobs A/B

The two rotary pots are used for adjusting synth/drum sound parameters and step pitch or length. Their movement can be automated for added interest.

bpm

This lowly button disguises its multiple uses. When used with the A/B knobs it controls tempo and swing, but it also provides access to volume and the step multiplier.

