Teenage Engineering PO modular400

Teenage Engineering PO modular400 Synthesizer Kit User Manual

Model: PO modular400

1. Introduction

Welcome to the user manual for your Teenage Engineering PO modular400 analog synthesizer kit. The PO modular400 is a powerful and versatile modular synthesizer designed for creative sound exploration. This kit includes a built-in speaker and battery pack, making it a portable and self-contained instrument. This manual will guide you through the assembly, operation, maintenance, and troubleshooting of your new synthesizer.

2. What's in the Box

Upon unboxing your PO modular400 kit, please ensure all the following components are present:

- 1 x Assembled Chassis
- 14 x Modules
- 1 x Battery Pack
- 1 x Power Splitter
- 37 x Trim Knobs
- 13 x Value Knobs
- 15 x Patch Cables
- 14 x Chassis Screws

3. Product Overview

The PO modular400 is an analog synthesizer featuring a comprehensive set of modules for sound generation and manipulation. It includes a step sequencer, mixer, various oscillators (square wave, sawtooth wave, sine wave), a sample & hold module, LFO, envelope generators, voltage-controlled amplifiers (VCAs), a noise generator, and a filter. It operates on 8 AA batteries or an optional external power adapter.

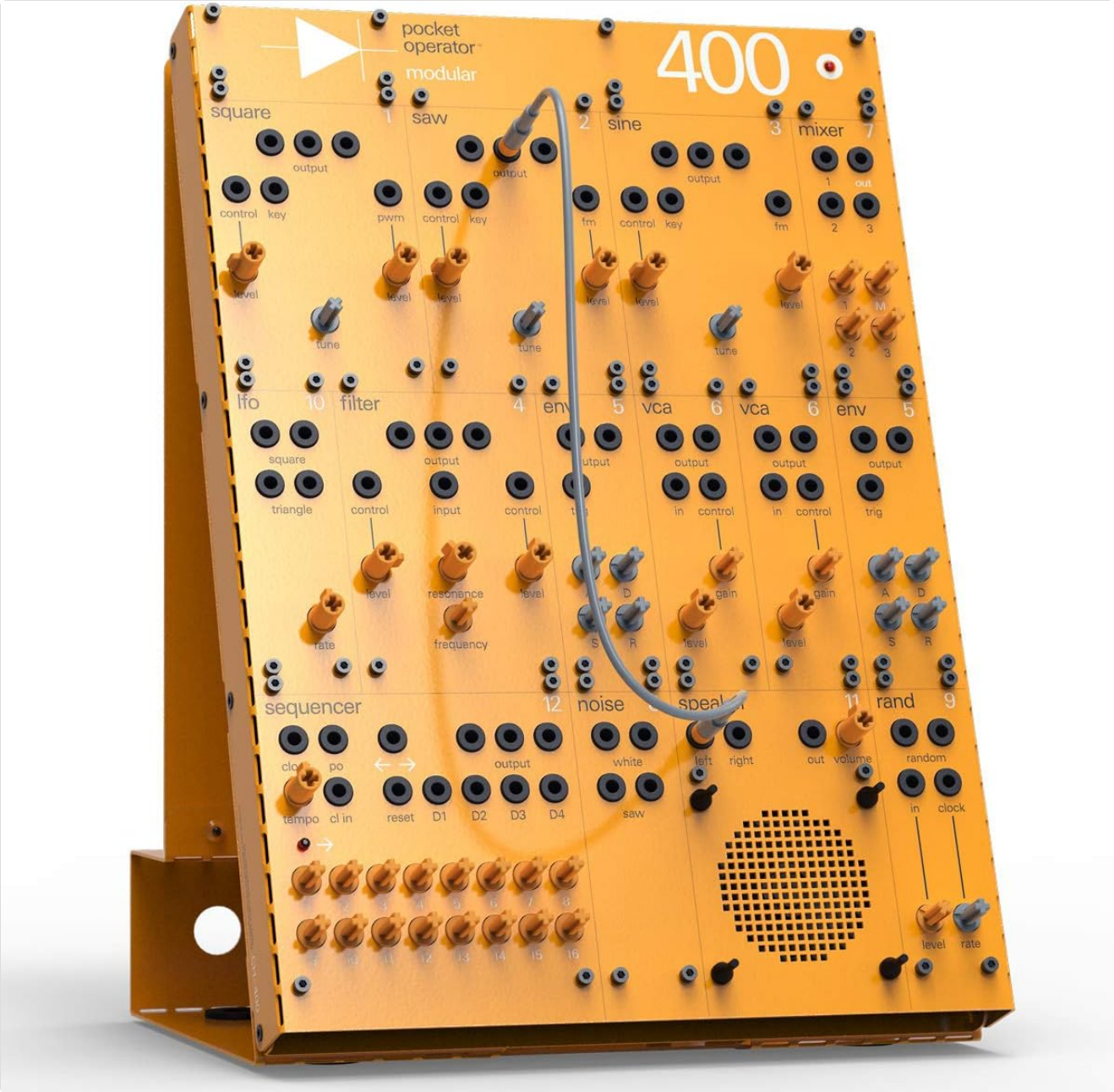


Figure 3.1: Front view of the PO modular400, showcasing its modular layout with various knobs, jacks, and the integrated speaker.

Key Modules:

- **Oscillators (VCOs):** Generate the primary sound waves (square, sawtooth, sine).
- **Mixer:** Combines audio signals from different sources.
- **Step Sequencer:** Creates rhythmic patterns and melodies.
- **Sample & Hold:** Generates random or stepped voltages.
- **LFO (Low-Frequency Oscillator):** Produces slow oscillations for modulation effects.
- **Envelope Generators (EG):** Shapes the amplitude or other parameters of a sound over time.
- **VCA (Voltage-Controlled Amplifier):** Controls the volume of a signal using a control voltage.
- **Noise Generator:** Produces white noise for percussive sounds or effects.
- **Filter:** Shapes the tonal characteristics of a sound by removing certain frequencies.
- **Speaker:** Integrated speaker for direct audio output.

4. Setup

4.1 Assembly

The PO modular400 comes as a kit requiring assembly. Follow the included visual instructions for attaching the modules to the chassis and securing them with the provided screws. Ensure all connections are firm before proceeding.

Figure 4.1: Side view illustrating the assembled chassis and the battery compartment.

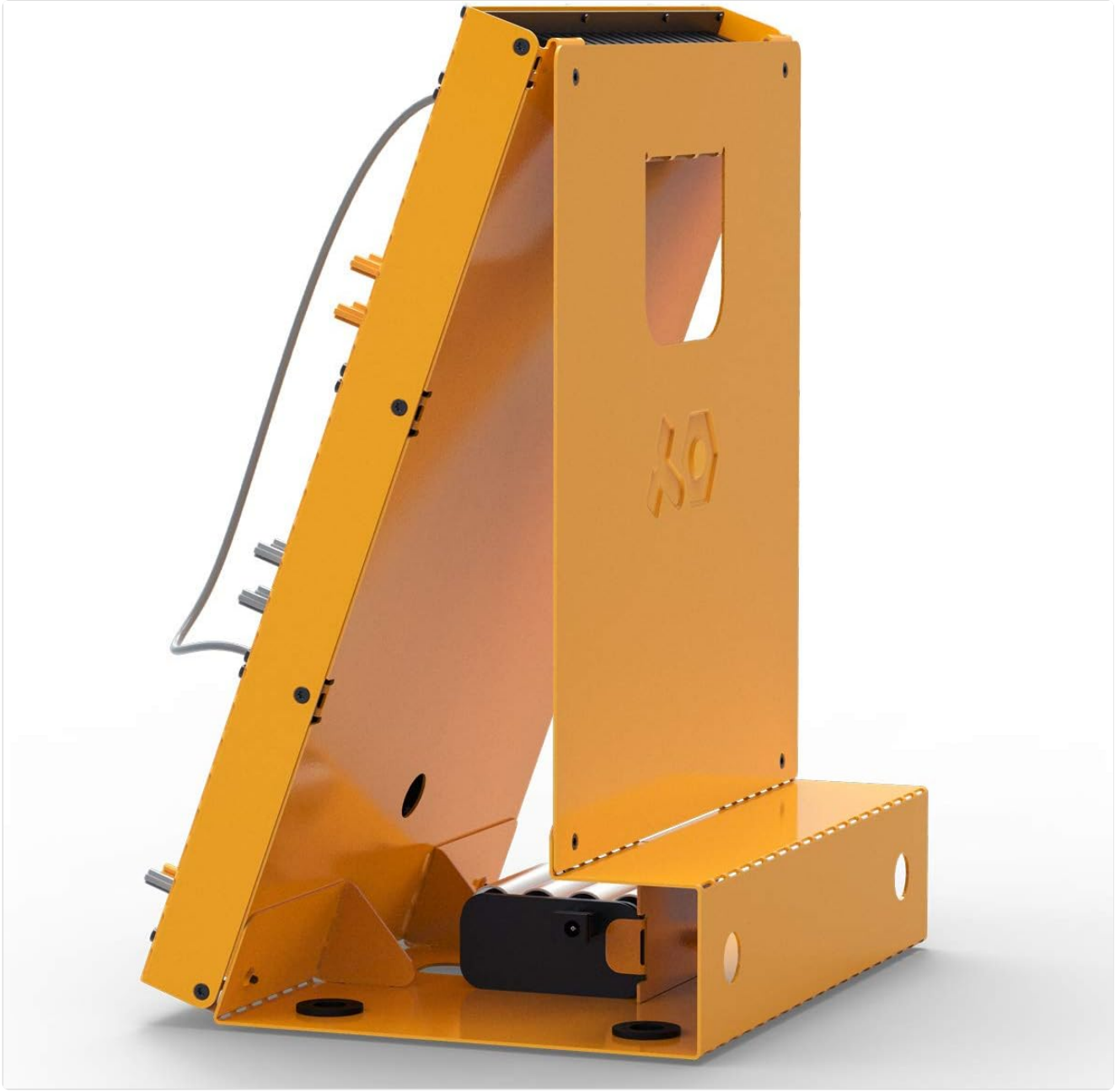


Figure 4.2: Rear view showing the stand mechanism and the battery pack installation.

4.2 Powering the Device

The PO modular400 can be powered by 8 AA batteries or an optional external power adapter (sold separately). Insert the batteries into the battery compartment located at the base of the unit, ensuring correct polarity. If using an external adapter, connect it to the designated power input jack.

4.3 Initial Connections

Before creating complex patches, familiarize yourself with the basic signal flow. A common starting point is to connect an oscillator's output to a VCA's input, then the VCA's output to the mixer, and finally the mixer's output to the speaker or an external audio interface.

5. Operating Instructions

5.1 Module Functions

Each module has specific inputs and outputs (jacks) and controls (knobs). Understanding their individual functions is

key to creating sounds.

- **Oscillators (Square, Saw, Sine):** Use the *tune* knob to adjust pitch and *level* to control output volume. The *control key* input allows for pitch modulation.
- **Mixer:** Features multiple inputs (1, 2, 3) and a single output. Use the individual *level* knobs to blend signals.
- **Sequencer:** Controls include *tempo*, *clock in*, *reset*, and individual step outputs (D1-D4).
- **LFO:** Generates low-frequency waveforms (square, triangle) for modulation. Adjust *rate* to change speed.
- **Filter:** Shapes the timbre. *Frequency* controls the cutoff point, and *resonance* adds emphasis at the cutoff.
- **Envelope (ENV):** Generates a voltage contour. Typically used to control the VCA's gain over time.
- **VCA:** Acts as a voltage-controlled volume knob. The *gain* knob sets the maximum level, and the *control* input modulates it.
- **Noise:** Provides white noise output.
- **Speaker:** Connect an audio signal to the *out* jack to hear sound directly from the built-in speaker.

Figure 5.1: Detail of the mixer module, illustrating its inputs and output.

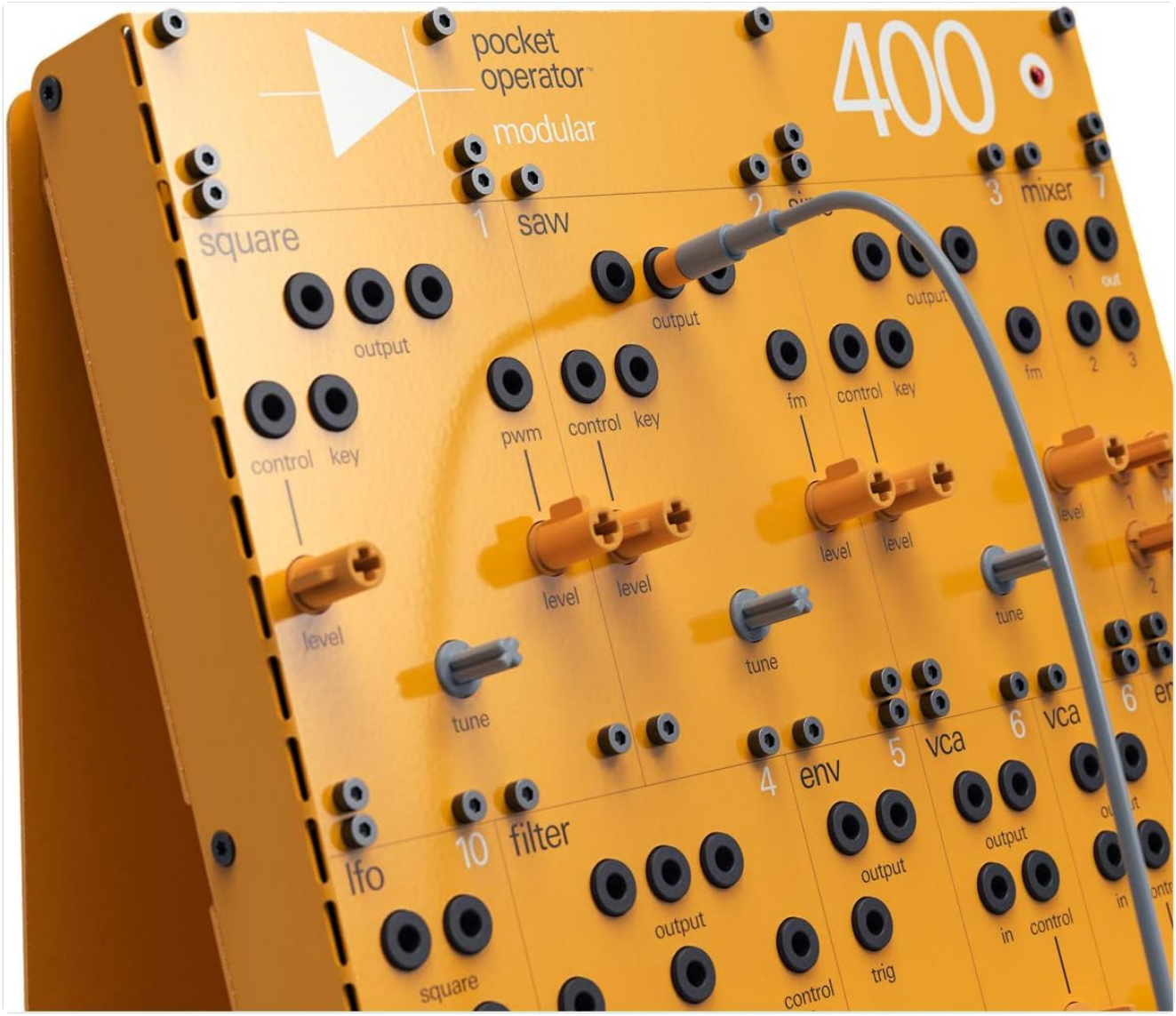


Figure 5.2: Detail of the oscillator section and a patch cable connection.

5.2 Patching

Patching involves connecting modules using the provided patch cables to create signal paths. Experiment with different connections to understand how modules interact. For example, an LFO output can be patched to an oscillator's control key input for vibrato, or to a filter's control input for wah-like effects.

5.3 External Connections

The PO modular400 can be integrated with other modular systems or semi-modular synthesizers. You can connect additional envelopes or other modules from external systems to expand its capabilities. Ensure voltage compatibility when connecting to external gear.

6. Maintenance

6.1 Cleaning and Storage

To maintain your PO modular400, wipe the surface with a soft, dry cloth. Avoid using abrasive cleaners or solvents. Store the unit in a dry, dust-free environment away from direct sunlight and extreme temperatures.

6.2 Battery Replacement

When the sound quality degrades or the unit fails to power on, it's likely time to replace the batteries. Open the battery compartment at the base of the unit and replace all 8 AA batteries with new ones, ensuring correct polarity. Dispose of old batteries responsibly.

7. Troubleshooting

If you encounter issues with your PO modular400, refer to the table below for common problems and their solutions.

Problem	Possible Cause	Solution
No sound output.	Incorrect patching; low batteries; speaker volume too low; external output not connected correctly.	Check all patch cable connections. Replace batteries. Increase speaker volume. Ensure external audio device is properly connected and powered.
Distorted sound.	Signal levels too high; faulty patch cable.	Reduce module output levels or mixer input levels. Try a different patch cable.
Unit does not power on.	Dead batteries; incorrect battery insertion; power adapter issue.	Replace batteries, ensuring correct polarity. Check power adapter connection and functionality.
Knobs are stiff or difficult to turn.	Manufacturing tolerance; dust accumulation.	This can be a characteristic of the design. Gentle, consistent use may ease them. Avoid forcing.

8. Specifications

Feature	Detail
Brand	Teenage Engineering
Model	PO modular400
Type	Analog Modular Synthesizer Kit
Material	Metal
Power Source	8 x AA Batteries (or optional external power adapter)
Included Components	Synthesizer modules, chassis, battery pack, power splitter, knobs, patch cables, screws.

9. Warranty Information

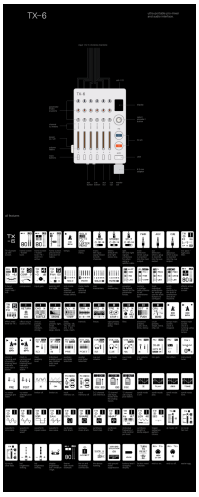
Teenage Engineering products are covered by a limited warranty against defects in materials and workmanship. Please refer to the official Teenage Engineering website or your purchase documentation for specific warranty terms and conditions. Keep your proof of purchase for warranty claims.

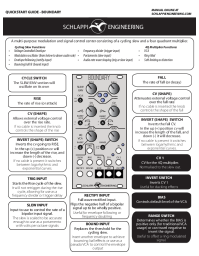
10. Customer Support

For technical assistance, troubleshooting beyond this manual, or warranty inquiries, please visit the official Teenage

Engineering support website or contact their customer service department. Contact information can typically be found on their official website or in your product packaging.
Official Website: teenage.engineering

Related Documents - PO modular400

	IMDK Pulse Oximeter User Manual - Operation and Safety Guide Comprehensive user manual for IMDK Pulse Oximeters (Models C101H1, C101A2, PO-A2AO, PO-B1AO, PO-A2AT, PO-A3AO, PO-H1AO, PO-C5AO, PO-C5AT, PO-C6AO, PO-C6AT). Covers device specifications, safe operation, maintenance, and troubleshooting for accurate SpO2 and pulse rate monitoring.
	Novation Circuit Tracks User Guide Explore the Novation Circuit Tracks, a powerful music production synthesizer and groovebox. This guide details its features, setup, sequencing, synthesis, and creative workflows for musicians.
	Teenage Engineering TX-6 Mixer and Audio Interface User Guide Comprehensive guide to the Teenage Engineering TX-6, an ultra-portable pro-mixer and audio interface, covering its features, controls, and functionalities.
	Blipblox SK2 Owner's Guide: Synthesizer Manual and Features Comprehensive owner's guide for the Blipblox SK2 synthesizer by Playtime Engineering. Learn about setup, controls, synthesis, MIDI functions, and troubleshooting for this electronic musical instrument.

	[Schlappi Engineering Boundary Module: Quickstart Guide and Features] Explore the Schlappi Engineering Boundary, a versatile Eurorack module featuring a cycling slew and four-quadrant multiplier. This guide covers its functions, controls, and patch ideas.
	[Teenage Engineering EP-133 K.O. II User Guide] Comprehensive user guide for the Teenage Engineering EP-133 K.O. II, a 64 MB sampler and composer. Learn about its features, hardware overview, sampling, sequencing, effects, and connectivity.