

# DIY

Creating Your Own Module

# CONTENT

- Day 1 Electronics Basics
- Day 2 Building The VCO

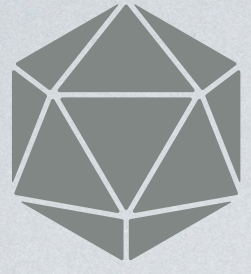


DIY session with educative kit  
from Modular Moon, created by  
Erdem Ugur Alici



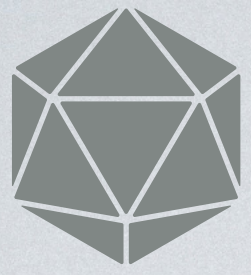
# Day I Electronics Basics

- Welcome and introduction
- Goals & Glossary
- Glance at schematics & Networks of Nodes and elements
- What is breadboard and how to use one
- What is voltage or potential difference
- What is current
- How to measure voltage
- How to measure current
- Current and Voltage types (AC-DC)
- How to check continuity
- Component tolerances
- Resistors



# Day 1 Electronics Basics

- How to measure resistors
- Resistor colour codes ( 4 or 5 band )
- High school level circuit analysis
- Resistors as current limiters
- Resistors as voltage dividers
- Variable resistors ( pots )
- Resistor types you will encounter in the wild
- Pot types you will encounter in the wild
- Capacitors
- Capacitors as DC blockers
- Capacitors and Resistors as Passive Filters
- Capacitor types you will encounter in the wild & finding their values



# Day 1 Electronics Basics

- Power sources and imperfections
- Debouncing capacitors
- Ferrite beads
- IC chips primer
- Reading Data-sheets
- Outputs loads
- Input and output impedances of a circuit and why you should care
- Optional Amplifiers
- Buffers
- Op-amps as buffers
- PO-amps as attenuators
- Demystifying SMD components



## Day 2 Building the VCO

- Showing around AS3340 data sheet
- Concepts of input and output
- Refresher on output loads and buffers
- Explanation of the circuit divided into functional parts
  - CV inputs
  - Outputs
  - Supply Voltages
  - Thermal reference voltage and tuning
  - PWM
  - Input attenuators
- What the hell is a PCB now?
- How it's manufactured & tested?





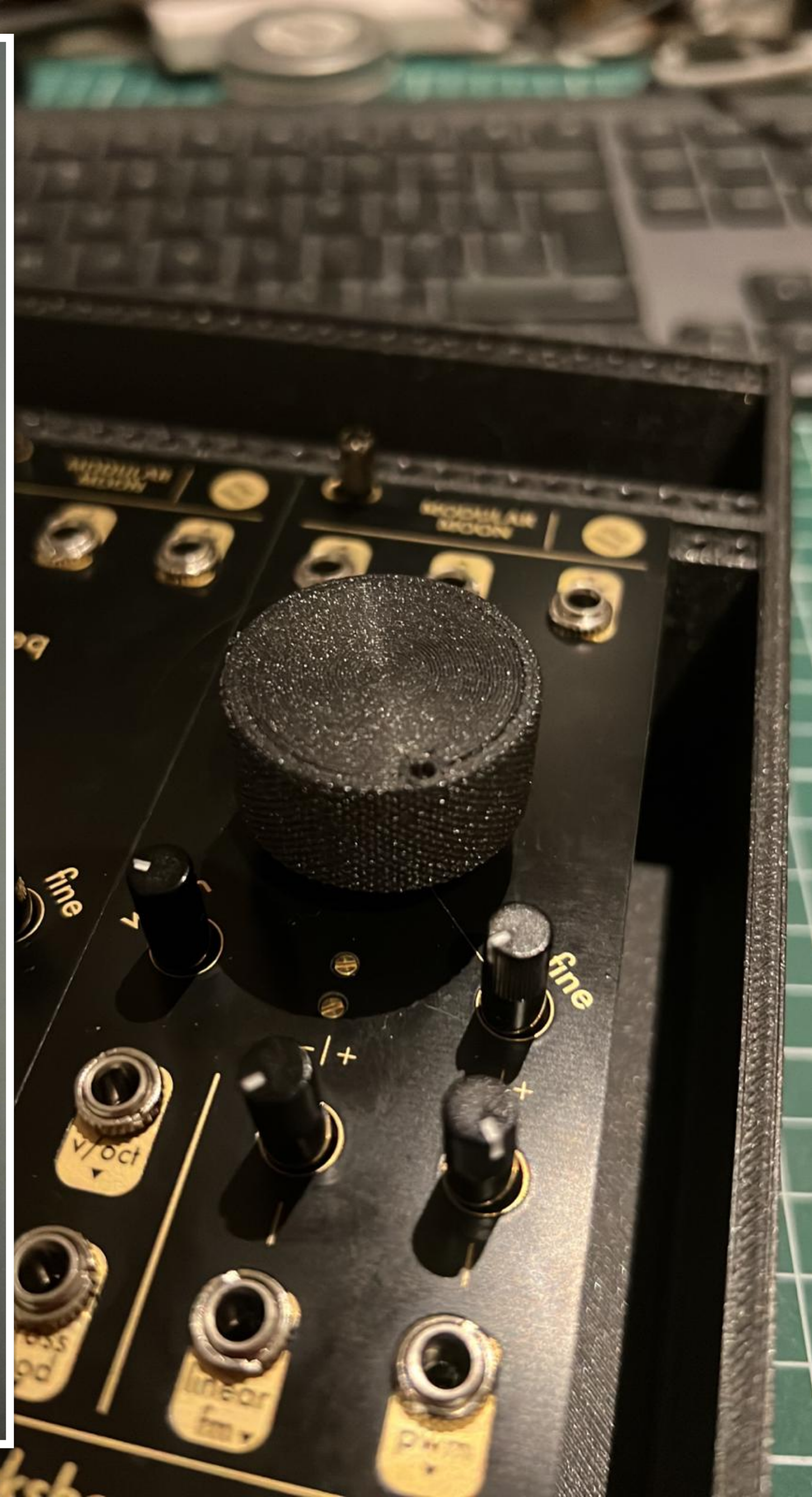
## Day 2 Building the VCO

- How it's designed & some pointers on designing PCB for small signal applications
- How the final circuit is related to data-sheet? A glimpse in designing for yourself
- Soldering theory ( reflow curves )
- Soldering practice ( on dummy per boards )
- What are cold joints and how to ding and fix them
- Having problems? Short introducing to debugging with a multimeter
- Explanation of Eurorack conventions ( dimensions, jacks and power ) and their implications on PCB and design
- Showing the real PCB and real parts
- Showing the real PCB and real parts
- Soldering pots
- Soldering jacks



## Day 2 Building the VCO

- Soldering power connector
- Tuning of the oscillator
- Profit ;)
- A round of drinks at a bar or a pizza party?





Thank You