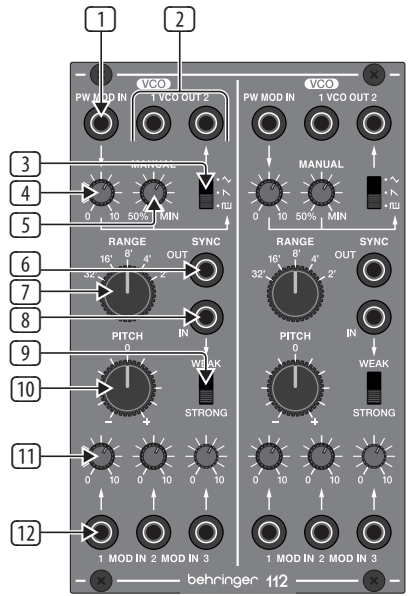# Quick Start Guide

112 DUAL VCO
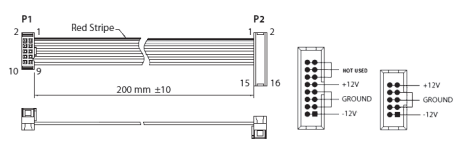
Legendary Analog Dual VCO
Module for Eurorack

Controls

1. **PW MOD IN** – Accepts a voltage from another module to control the pulse width.

2. **VCO OUT** – Send the VCO signal to one or two sources via 3.5 mm TS cables.

3. **WAVEFORM** – Select pulse, triangle or sawtooth waveforms for the VCO.

4. **PULSE WIDTH** – Adjusts the pulse width modulation based on the voltage received at the PW MOD IN jack.

5. **MOD MANUAL** – Sets the ratio between the upper and lower portions of the pulse wave.

6. **SYNC OUT** – Sends a synchronization signal via 3.5 mm TS cable.

7. **RANGE** – Sets the pitch range of the VCO in octave steps.

8. **SYNC IN** – Accepts a synchronization signal via 3.5 mm TS cable.

9. **WEAK/STRONG** – Determines the accuracy of synchronization.

10. **PITCH** – Fine tunes the pitch.

11. **MOD LEVEL** – Adjusts the level of the signal connected to the associated MOD IN jack.

12. **MOD IN** – Accepts voltages that control or modulate the VCO pitch.

Power Connection

Connect end P1 to the module socket
Connect end P2 to the power supply

The module comes with the required power cable for connecting to a standard Eurorack power supply system. Follow these steps to connect power to the module. It is easier to make these connections before the module has been mounted into a rack case.

1. Turn the power supply or rack case power off and disconnect the power cable.

2. Insert the 16-pin connector on the power cable into the socket on the power supply or rack case. The connector has a tab that will align with the gap in the socket, so it cannot be inserted incorrectly. If the power supply does not have a keyed socket, be sure to orient pin 1 (-12 V) with the red stripe on the cable.

3. Insert the 10-pin connector into the socket on the back of the module. The connector has a tab that will align with the socket for correct orientation.

4. After both ends of the power cable have been securely attached, you may mount the module in a case and turn on the power supply.

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Installation

The necessary screws are included with the module for mounting in a Eurorack case. Connect the power cable before mounting.

Depending on the rack case, there may be a series of fixed holes spaced 2 HP apart along the length of the case, or a track that allows individual threaded plates to slide along the length of the case. The free-moving threaded plates allow precise positioning of the module, but each plate should be positioned in the approximate relation to the mounting holes in your module before attaching the screws.

Hold the module against the Eurorack rails so that each of the mounting holes are aligned with a threaded rail or threaded plate. Attach the screws part way to start, which will allow small adjustments to the positioning while you get them all aligned. After the final position has been established, tighten the screws down.

Specifications

Pulse Width Input	
Type	2 x 3.5 mm TS jacks, DC coupled
Impedance	70 kΩ, unbalanced
Maximum input level	±10 V, 4% per volt

VCO Output	
Type	4 x 3.5 mm TS jacks, DC coupled
Impedance	1 kΩ, unbalanced
Maximum output level	10 V p-p
Frequency range with no external CV	10 Hz to 500 Hz
Frequency range using external CV	1 Hz to 30 kHz

Sync Input	
Type	2 x 3.5 mm TS jacks, DC coupled
Impedance	100 kΩ, unbalanced
Maximum input level	10 V p-p
Minimum input to trigger	2.5 V p-p

Sync Output	
Type	2 x 3.5 mm TS jacks, DC coupled
Impedance	1 kΩ, unbalanced
Maximum output level	10 V p-p

Control Inputs	
Type	6 x 3.5 mm TS jacks, summed
Impedance	50 kΩ, unbalanced
CV range	±10 V, 1 V/oct

Controls	
PW level	-∞ to unity gain
PW manual	50% to min
Waveform	Triangle, sawtooth, pulse
Range	32', 16', 8', 4', 2'
Pitch	±1 octave
Weak/strong	Sync mode select
Mod level	-∞ to unity gain

Power	
Power supply	Eurorack
Current draw	90 mA (+12 V), 70 mA (-12 V)

Physical	
Dimensions	81 x 129 x 46 mm (3.2 x 5.1 x 1.8")
Rack units	16 HP
Weight	0.2 kg (0.44 lbs)

LEGAL DISCLAIMER

LIMITED WARRANTY

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