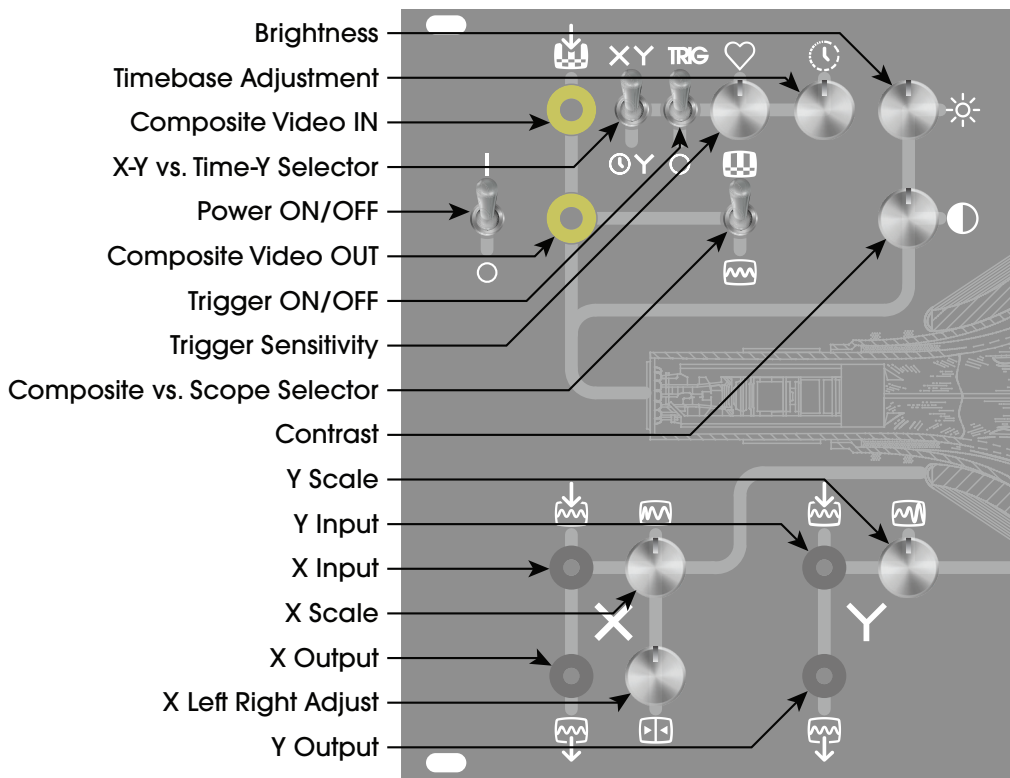


VONDLE SCOPE

X-Y OSCILLOSCOPE

MANUAL 1.0



☀ Brightness

The brightness knob controls the voltage to the electron beam. Turning up the voltage makes the beam brighter. Be aware, that a brighter beam will burn out faster and if the beam is not moving has a potential to burn into the screen.

◐ Contrast

The contrast knob controls the contrast of the screen. In scope mode, it is advised to dial this all the way to the left to achieve a steady signal.

🕒 Timebase Adjustment

This knob controls the speed that the beam travels from left to right across the screen. A faster beam allows you to see higher frequency signals, a slower beam will allow you to see lower frequency signals. This control is only relevant in Time-Y (⌚) mode.

♡ Trigger Sensitivity

This controls the trigger level for the trigger. If your wave is either not on the screen or is not steady, try changing this level to fix it. NOTE: the trigger level is not visible on screen, so you just have to try changing it until it's correct. This control is only relevant in Time-Y (⌚) mode.

TRIG Trigger On/Off

Turns the trigger on. The trigger controls when the timebase beam starts moving from left to right. When the wave crosses a certain point, this activates the trigger. The result is that if you have a regular wave, it won't drift from left to right. This control is only relevant in Time-Y (⌚) mode.

X-Y vs. Time-Y Selector

This switches from X-Y mode to Time-Y mode. X-Y mode is used when you have signals going into both the x and the y inputs. Kinda like an etch-a-sketch, one signal controls the beam deflection in the x (horizontal) dimension, and the other controls the deflection in the y (vertical) dimension. Time-Y mode only requires 1 input (Y), and displays the wave as a function of time.

Composite Video In

This is a RCA input for a composite video signal. This allows you to use the display as a regular B&W Monitor. If you use this, you will also want to flip the switch to composite mode.

Composite Video Out

This is a buffered video out port. Instead of splitting the input signal, this allows any input signal to go back out to another display without losing signal strength. This is not a video output for the scope mode.

On/OFF

A power switch for the module. This is included because these CRTs are old, and power hungry. Turn the module off if you aren't using it to keep it from wearing out.

Composite vs. Scope Selector

Selects between composite mode (TV monitor) and scope mode (oscilloscope). In composite mode make sure you have a signal going into the RCA input. In scope mode make sure you have a signal going to the Y or X & Y inputs.

X Input / Y Input

There are two inputs. One input for the x (horizontal) axis is on the left near the “X.” The y (vertical) input is near the “Y”. In Time-Y (ⓈY) mode, only the “Y Input” is needed. This can be line-level audio or CV. Adjust the scale appropriately. Disconnect inputs if the unit power switch is off (they will affect the signal)

X Output / Y Output

Buffered output, so the scope can be in the middle of a signal chain. This is a duplicate of the signal going in.

X Scale

This knob changes the scale the wave is displayed in the x (horizontal) dimension. To avoid using too much power and having a dim display, avoid making the wave go far off the screen on the left and right. This will need to be used if looking at CV (turn it down) vs. line-level audio (turn it up)

Y Scale

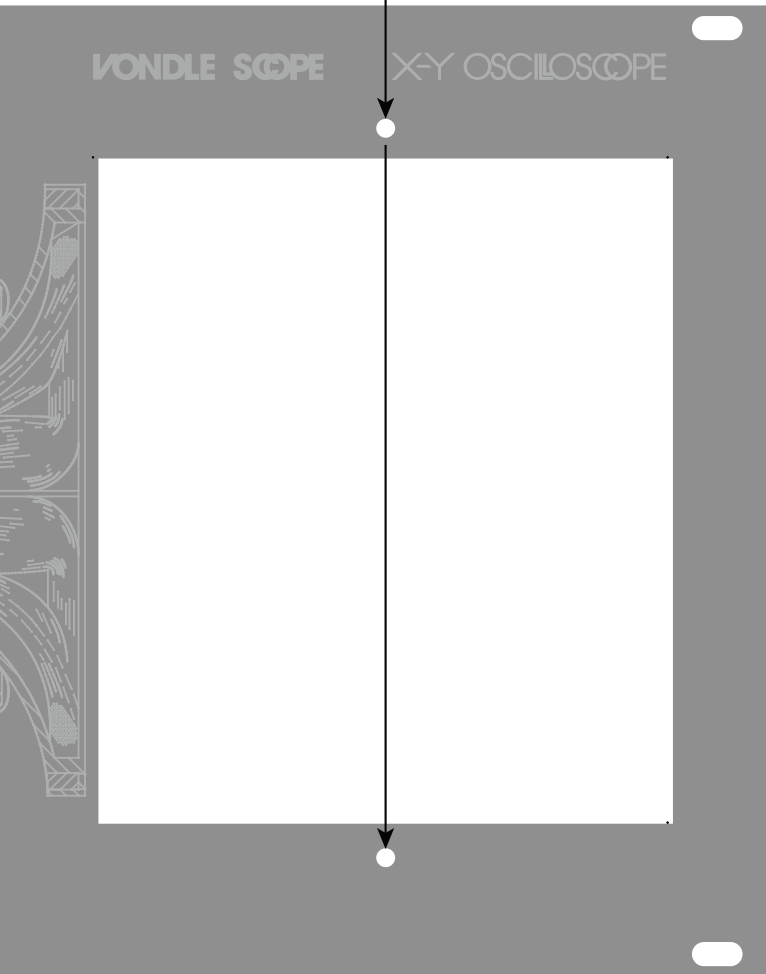
This knob changes the scale the wave is displayed in the y (vertical) dimension. To avoid using too much power, avoid making the wave go off the screen on the top and bottom. This will need to be used if looking at CV (turn it down) vs. line-level audio (turn it up)

X Left Right Adjust

Adjusts where the center-line for X is. You will likely want to adjust this when moving between X-Y (XY) and Time-Y (ⓈY) modes.

Colored Filters

Each Vondle Scope ships with five (red, blue, green, yellow & orange) colored filters. The filters mount on top of the display with the included bolts.



Information and Recommendations

Turn the Trigger off when on Composite mode - The trigger overrides the blanking pulse of the signal. Without a blanking pulse, the signal looks very low contrast.

Frequency Response - This is not a lab-grade scope. Lab-grade scopes use electrostatic deflection of the electron beam, which allows them to get an extremely flat frequency response. This scope is a repurposed TV that uses deflection coils. These deflection coils are big inductors, so as the frequency of the signal increases, their impedance does also. As a signal increases in frequency, you will notice the signal show up smaller. This means that high frequency “oscilloscope music” will likely not look the same on this scope as on a lab-grade scope. I understand I could combat this with a boost converter, high voltage op-amps, and a tuned low-pass filter. Cost, size and power usage prevented me from doing so.

Fragility of Old Parts - The CRT is probably at least 20 years old. In “burn in” testing I left units on for over 5 hours straight. One of them had a flyback converter (the metal box on the bottom PCB) fail. Like the CRT, These parts are no longer manufactured. Please do not leave the unit on unnecessarily.

Power Requirements

+12V - 600mA

-12V - 65mA

Size

Eurorack 3U /133mm height

42hp / 213mm wide