

# (WIP) How to use NanoVNA

How to calibrate and operate the NanoVNA (Vector Network Analyzer)

- [CH 0: What can the NanoVNA do?](#)
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# CH 0: What can the NanoVNA do?

The NanoVNA is a device that can test single port and multi-port RF devices, using two ports: CH0 and CH1.

The device emits RF from CH0, and records the RF amplitude and phase at both CH0 and CH1 ports. RF at CH0 port is reflected power (S11 measurement), and RF at CH1 is measured as "through" power (S12).

Up to 4 measurements can be displayed at once on the NanoVNA, the options are:

- LogMag (magnitude of RF received)
- Phase (angle/degrees of Rx RF relative to CH0 output)
- Delay (nS, delay between sending RF from CH0 port, and receiving)
- Smith Chart (impedance of S11/S12 system, as resistance + capacitance/inductance)
- SWR (Standing Wave Ratio)
- Polar (impedance of S11/S12 system, as  $x \pm j$  magnitude, plotted on smith chart)
- Linear (??)
- Real (x component of polar, as magnitude)
- Imaginary ( $\pm j$  component of polar, as magnitude)
- Resistance (x component of polar, as resistance)
- Reactance ( $\pm j$  component of polar, as  $\pm$ resistance)

When choosing a trace, make sure to select which channel to measure as well!

## TODO: Add detailed description of each trace type

# CH 1: Set scale/sample rate of graphs

WIP

# CH 2: Calibrate

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# CH 3: Test!

WIP