

CleverScope Frequency Response Analyzer

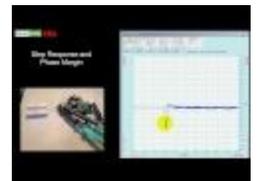
If you are designing or verifying feedback systems such as power supplies, audio power amplifiers, servo amplifiers and physical positioning systems it is very helpful to measure the Gain/Phase response of the feedback loop. You can use the Phase Margin as a measure of stability. Values of 50-60 degrees represent the optimal response to a step change in load or signal, without oscillation or sluggishness. The Cleverscope Frequency Response Analyser (FRA) uses the [CS701](#) isolated Sine Wave Generator to stimulate the feedback loop at the output of the power supply or amplifier - just where a load would be applied. You don't need an injection transformer as more traditional approaches use, which means you get operation from DC to 65 MHz, no distortion from the transformer, and lower cost. Using a [CS328A-FRA](#) you can plot and visualize stability and transient response on a live system.

The 300 V RMS isolated [CS701](#) can be used on mains powered systems safely, while the +/- 24V DC offset capability of the input to the [CS328A-FRA](#) means you can measure the response down to DC in power supplies of up to +/-24V. For higher voltage power supplies, use AC coupling.

In addition you can use the [CS328A-FRA](#) to measure the Impedance and Phase of feedback networks, transformers, PCB power planes, capacitors, resistors and inductors. The FRA Control Panel makes it easy to set up everything in one place - you don't need to know how to use the rest of the Cleverscope system - and you can also measure Capacitance, Inductance, Effective Series Resistance, Dissipation Factor and the Quality Factor of components. Using the FRA control panel you can fully evaluate a transformer's transfer response, the primary and secondary inductances, the leakage inductance and interwinding capacitance, all over frequency. Using DC offset you can check saturation and DC sensitivity. You don't need to buy an expensive Network Analyser because the Cleverscope FRA does all this for you over a 0-65Mhz frequency range!

Why not check out our Cleverscope FRA white papers - this one on [Power supply response](#), and this one on [Impedance Measurement](#). Also check out these videos:

Video of FRA Gain/Phase in action



Video of FRA Impedance Measurement in action

