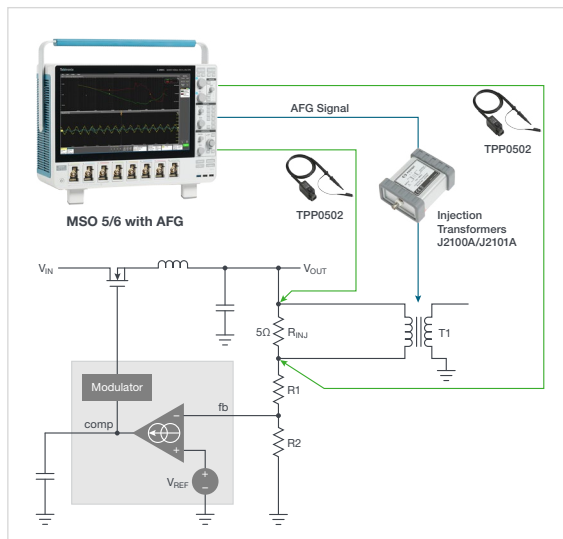# CONTROL LOOP ANALYSIS KIT

## A simplified test setup for streamlined power design stability measurement

The Control Loop Analysis Kit from Tektronix takes the mystery out of the control-loop tuning process and offers power electronics design engineers a simple test setup to validate and debug feedback loop stability, on an oscilloscope. It combines our power industry-focused 5 or 6 Series MSO oscilloscopes with built-in AFG, low attenuation passive probes, and powerful software with frequency response analysis (FRA) suite to eliminate the complexity of multiple test instruments. The same setup also enables engineers to test Power Supply Rejection Ratio (PSRR) on the regulator stages in the design.

Control loop analysis (Bode plot). *(Injection transformer sold separately.)*
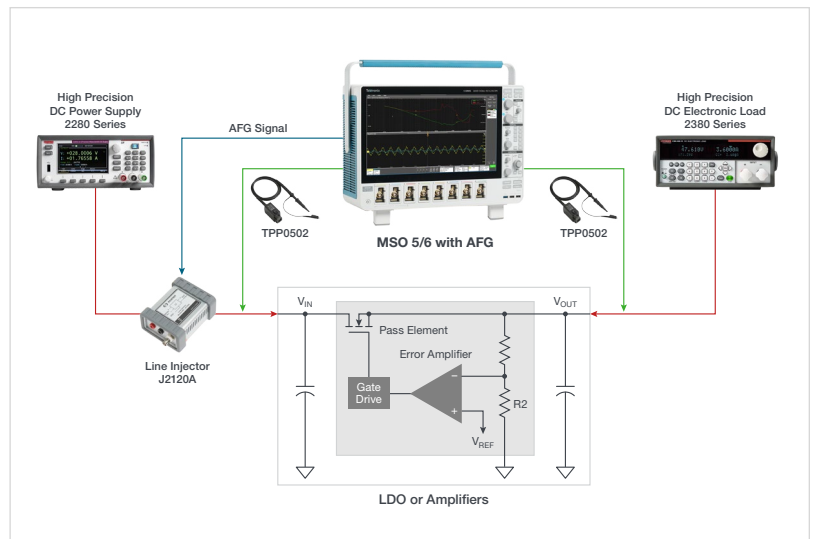
PSRR setup. *(Line injector, DC power supply, and DC electronic load sold separately.)*
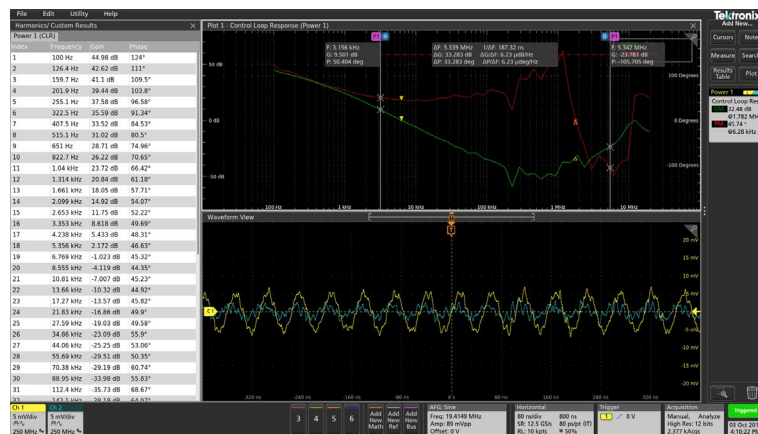
Get more visibility with your software. The oscilloscope's FRA Software Suite automatically performs control loop and PSRR measurements to improve accuracy, ensure repeatability, and speed time to market.
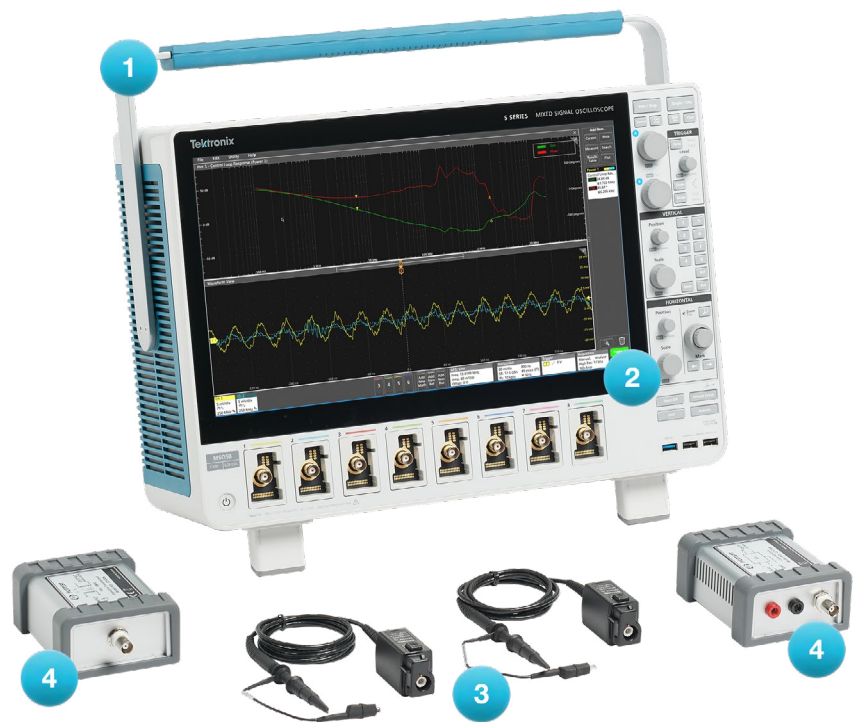
Characterize:

- Stability of the closed loop circuit with the measurement of control loop response (BODE plot) with gain margin and phase margin measurements.
- Power Supply Rejection Ratio of DC-DC converters, LDOs and other amplifiers.

Tektronix®

Key Capabilities and Features

- **Control Loop Response (BODE plot):** Confirm stability of the closed loop circuit to the power supply design.

- **Power Supply Rejection Ratio (PSRR):** Ensure that AC-DC designs are tested effectively.

- **PDN Impedance:** Use the same oscilloscope setup to perform PDN impedance eliminating the need for a stand alone vector network analyzer.

- **Navigation and annotation feature** for most cycle-based measurements.

- **PI commands** for measurements, configurations, and results.

- **Save** all active power measurements, plots, and tables to a .mht or .pdf report

What's in the Control Loop Analysis Kit?

1 **5/6 Series MSO Oscilloscope:** High resolution (12 bit) oscilloscope with built in AFG (Arbitrary Function Generator) for frequency sweep.

2 **5-PWR/6-PWR Software:** Built in Frequency Response Analyzer for accurate and repeatable measurements of control loop response (BODE Plot) including gain/phase margin, PSRR measurements, and impedance measurements.

3 **2× TPP0502 High-bandwidth, Passive Probes** offer class leading, lowest input capacitance and loading at low signal voltage levels making them ideal for control loop and stability measurements.

4 **Recommended injectors purchased separately from Picotest:** Control Loop (Bode Plot) measurements: J2100A (1 Hz–5 MHz); J2101A (10 Hz–45 MHz); J2120A for PSRR.

Visit https://info.tek.com/www-control-loop-analysis.html for more information.