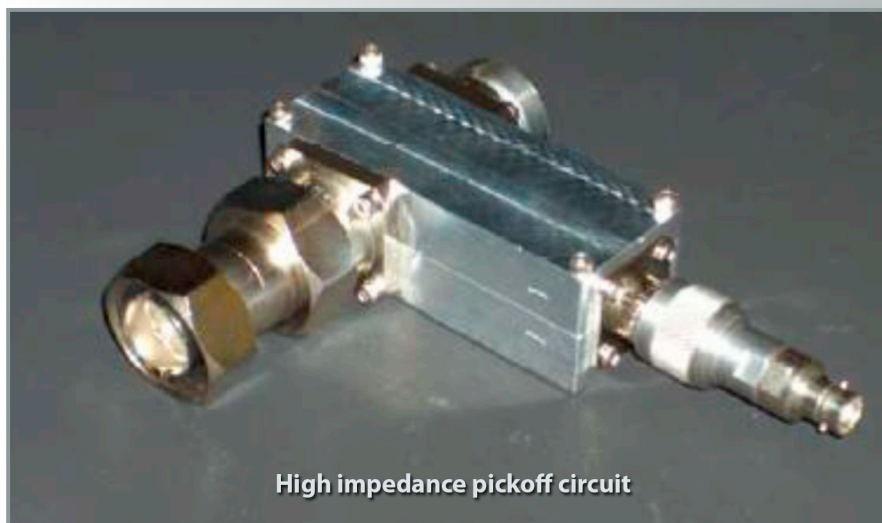


Calibrated Broadband DC-Coupled High Impedance Pickoff Circuit for Fast Rise, High Voltage Signals

UT-B ID 200802107



Technology Summary

A calibrated broadband DC-coupled high impedance pickoff circuit was invented by ORNL researchers. This device permits monitoring of fast rise, high voltage energy circuits and can minimize the parasitic effects that are a persistent challenge in electronics. The device is placed in line with the cable and has an output connector that will safely and remotely monitor the signal via an oscilloscope.

The device replaces the current oscilloscope probes that are used to track signals. The invention can be applied to any apparatus that requires voltage signal monitoring, including high energy, pulsed power lasers, and magnets.

The invention includes two or more in-situ interfaces that link a source to an internal load and an external load. Dynamic elements are configured to overwhelm parasitic capacitance while a shield enclosing the linear and dynamic elements dampens energy interference.

Advantages

- Less expensive than scope probes
- Easily mounted in line with cables
- Enables use of long cables to connect remote instrumentation devices
- "Finger safe"

Potential Applications

- Remote monitoring of high energy, pulsed power signals such as lasers and magnets
- Radiation and contamination environments

Patent

Craig E. Deibele, Brian Link, and Vladimir V. Peplov, *Calibrated Broadband DC-Coupled High Impedance Pickoff Circuit for Remote Monitoring of High Power in Impedance Controlled Environments*, U.S. Patent Application 12/384,358, filed April 3, 2009.

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