

**Isolation Amplifier**  
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The High Resolution Echelle Spectrograph (HIRES) is mounted permanently on Keck 1's right Nasmyth platform and is currently having its CCD detector, Dewar, and CCD controller electronics upgraded. All external interfaces to the new CCD controller are optically isolated due to upgrade requirements of faster readout speeds and lower readout noise. A 50-liter Dewar supplies LN<sub>2</sub> to HIRES and contains circuitry powered by a switching power supply, thus a Precision Analog Isolation Amplifier is required to isolate the noisy output signal from the "quiet" CCD controller environment. The Isolation Amplifier was created as a prototype based on the circuit diagram provided in HCNR201 data sheet by Agilent Technologies. The circuit was tested using a DC Supply source and a Switching Supply source. The circuit was tested for Linearity, as well as input noise and output noise. Testing results indicate that the Isolation Amplifier is working properly with a min error of 0.012% and an average error of 0.00%. Error is attributed to the mechanical swing of the variable resistor.