

**Optical couplers  
are good for  
analog signals, too**

Although generally used in digital systems, optical couplers can also be used for coupling analog signals, notes O'Dale K. Griffith, Jr., who's at the Microelectronic Device division of Rockwell International Corp. in Anaheim, Calif. **For analog applications, the inherent nonlinearity of an optical coupler's transfer characteristic can be compensated for by using a second optical coupler of the same type.** In this way, the nonlinearity error can be reduced to just a tracking error between the two couplers.

The LED inputs of the couplers are wired in series with each other, with the output of one coupler facing the circuit to be isolated, and the output of the other coupler facing the driving circuit. If an operational amplifier is used to drive the input LEDs of both couplers, the output of the second coupler will be feeding the inverting input of the op amp. **Since this second optical coupler is inside the feedback loop of the op amp, any nonlinearities will be reduced by a factor that is determined by the loop gain.**

**—Laurence Altman**