IMPROVED ANALOG TO DIGITAL CONVERTER AND ASSEMBLY FOR USE IN OPTICAL DRIVE SYSTEM TO NORMALIZE SERVO ERROR SIGNALS AND MULTIPLEX REFERENCE VOLTAGE INPUTS AND DIGITAL OUTPUTS

ABSTRACT

An optical disc system includes focusing and tracking mechanisms controlled by feedback loops having electronic circuits for generating servo error signals. A digital lead/lag compensation circuit assembly includes a servo loop having a transfer function and error signal. The circuit assembly includes a motor having a resonance frequency less than a predetermined sampling frequency and a compensation circuit for stabilizing the servo loop. The compensation circuit has a transfer function including a single lead and complex lag for producing a notch filter with a notch. This function is formulated so that the notch occurs at approximately one half the predetermined sampling frequency thereby reducing amplitude of the resonance frequency in the servo loop transfer function. Also included are an isolator for vibration isolation and accommodation of thermal expansion, an oscillator with a tank circuit, an improved focus capture system, and means for identifying blank sectors in a storage medium.

Figure 85