

## SERVO-FREE VELOCITY ESTIMATOR FOR COIL DRIVEN ACTUATOR ARM IN A DATA STORAGE DRIVE

### ABSTRACT

A system and method for determining the velocity and/or position of a coil driven actuator arm (104) without the aid of servo signals. A sample-hold unit (212) is used to measure no-motion coil voltage in the voice motor coil while applying a predetermined coil current. Then, while the same magnitude (opposite direction) current is applied to move the actuator arm (104), the coil voltage is measured. The coil voltage is reduced by the measured no-motion coil voltage, producing a measurement of back-emf. The back-emf may be amplified by a predetermined factor to yield an estimation of velocity, and this amount may be integrated to provide a gauge of relative actuator arm position.

Fig. 2

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