

Method for Thermal Asperity Detection and Compensation in Disk Drive Channels

Abstract

A signal from a MR/GMR head enters the channel, coming via the arm electronics module (AE). The signal is amplified by a variable gain amplifier (VGA) (104), a thermal asperity (TA) detector circuit (112) accepts the signal from the output of the VGA (104) and processes it through a low-pass filter (114) and a non-linear rectifier (116), both of which are adjustable to provide reliable detection of a TA. The output of the non-linear rectifier (116) is passed to the threshold comparator (118), which sets a detection threshold for TA's. The threshold comparator's output is a digital signal which indicates the occurrence of a thermal asperity in the data stream. The TA event signal triggers the programmable digital controls (120) which operate on a digitally variable resistor (Rin) (202) to control a pole frequency prior to the VGA (104).

Fig. 1B



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