

GAIN CONTROL CIRCUIT FOR SYNCHRONOUS WAVEFORM SAMPLING

ABSTRACT

A mixed analog and digital gain control circuit (126) for controlling the amplitude of an analog input signal. The circuit has a variable gain amplifier (202) that receives the signal from a read/write recording head preamplifier (128). The output of the variable of the variable gain amplifier (202) is connected through a multiplexer (203) and equalizer (204) to an analog to digital converter (206) for converting the analog signal to sample values at control sampling times. A gain control circuit (330) receives the digital values and the output of a pulse detector (312) indicating when a pulse has occurred. A gain error detector (802) within the gain control circuit determines the amount of error in the amplitude of each detected pulse, and this error amount is filtered (804) and sent through a digital to analog converter (212) and then through an exponentiating circuit (216). The output of the exponentiating circuit is connected to a gain control input of the variable gain amplifier (202).

Figure 2