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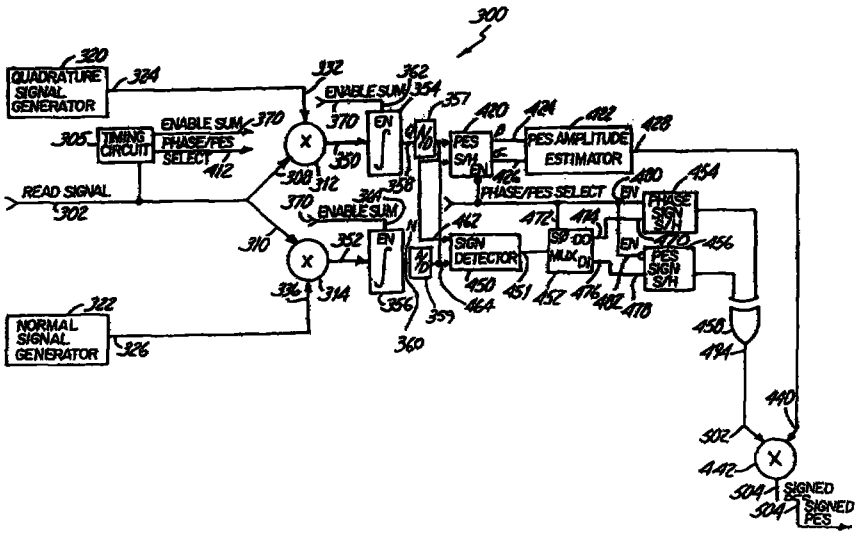
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(54) Title: ASYNCHRONOUS ANALOG DEMODULATOR AND METHOD FOR A NULL-TYPE SERVO PATTERN



(57) Abstract

An asynchronous demodulator and method is provided which determines a position error of a read head (134) relative to a position on a medium (122) in a storage device (120). The read head generates a read signal (400) as the read head passes over a servo area (180) on the medium (122). The demodulator (300) generates a normal demodulating signal (414) that is asynchronous with the read signal (400) and a quadrature demodulating signal (412) that is ninety degrees out of phase with the normal demodulating signal (414). The read signal (400) is multiplied by the normal demodulating signal (414) and the quadrature demodulating signal (412) to produce a normal position signal and a quadrature position signal. The demodulator produces a position error magnitude and a position error direction based on the normal position signal and the quadrature position signal.