

IN-SITU PRESSURE SENSOR BASED ON READ HEAD RESISTANCE

ABSTRACT

A magnetic recording disk drive with a magnetoresistive (MR) read head (34,60) and a thermoresistive signal (50) contained in the feedback signal from the MR read head (34,60) are provided. The thermal conductivity of the air inside the hard disk drive is affected by the air pressure. Fluctuation in the thermal conductance from the MR read head (34,60), thus affecting the thermoresistivity of the MR read head (34,60). Based on a thermoresistive signal (50), the temperature (T_s) of the head (34,60) may be determined. The temperature (T_s) of the read head (34,60) is then utilised to determine the pressure, based on a predetermined relationship between the MR read head temperature (T_s), internal pressure (84), and internal operating temperature (T_a).

Fig. 1.