

Problem: how to record and play back data at a high line density. Means for solving the problem: a DSV control bit determining/inserting unit (11) inserts DSV control bits for execution of DSV control into an input data string and outputs the data string including the DSV control bits to a modulation unit (12). The modulation unit (12) converts the data string with a basic data length of 2 bits into variable length code with a basic code length of 3 bits in accordance with a conversion table and outputs the code resulting from the conversion to a NRZI encoding unit (13). The conversion table used by the modulation unit (12) includes substitution codes for limiting the number of consecutive appearances of a minimum run to a predetermined value and substitution codes for keeping a run length limit. In addition, the conversion table enforces a conversion rule, according to which the remainder of division of the "1" count of an element in a data string by 2 having a value of 0 or 1 shall always be equal to the remainder of division of the "1" count of an element in the code resulting from conversion of the data string by 2.

