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(54) **DEVICE FOR ENCODING/DECODING N-BIT SOURCE WORDS INTO CORRESPONDING M-BIT CHANNEL WORDS, AND VICE VERSA**

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(57) **ABSTRACT**

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A device is disclosed for encoding a stream of databits of a binary source signal (S) into a stream of databits of a binary channel signal (C) satisfying a (d,k) constraint, wherein the bitstream of the source signal is divided into n-bit source words (x_1, x_2), which device comprises converting means (CM) adapted to convert said source words into corresponding m-bit channel words (Y_1, Y_2, Y_2). The converting means (CM) are further adapted to convert n-bit source words into corresponding m-bit channel words, such that the conversion for each n-bit source word is parity preserving (table I). The relations hold that $m > n \geq 1$, $p \geq 1$, and that p can vary. Preferably, $m = n + 1$. Further, a sync word generator (9) is available for generating a q-bit sync word also satisfying said (d,k) constraint, the said sync word starting with a '0' bit and ending with a '0' bit, the device further comprising merging means (19) for merging said sync word in said stream of databits of the binary channel signal, and that q is an integer value larger than k. (FIG. 1)

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(51) **Int. Cl.**⁷ **H03M 5/00; H03M 7/00**

(52) **U.S. Cl.** **341/58; 341/59**

(58) **Field of Search** **341/58, 59, 73; 375/366, 368; 360/40**

Further, a decoding device is disclosed for decoding the channel signal obtained by means of the encoding device.

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46 Claims, 4 Drawing Sheets

