APPLICATION OF MARTIX MULTIPLEXING METHOD

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At designing of devices for gathering, processing and data transmission in a digital form there is a necessity to work with several sources of the data.

For example, there is a task to make noiseproof coding and data transmission, received from N channels. The data is stored in RAM memory and forms a matrix in the size N×M, where N - quantity of columns, M - quantity of lines. The data from each channel contains in columns, but in memory cells lines of a matrix are written down. We can use application of a noiseproof code (for example, cyclic) to make matrix coding in the lines and to code data file entirely. But if noise in data transmission channel garbles a considerable cluster of bits in information package it will be impossible to restore the data that will lead to its loss.

A method of the matrix multiplexing is expedient to use for noiseproof transmission of a multichannel digital signal. The principle of matrix multiplexing consists in the following.

It is necessary to transpose matrix N×M. It means each channel will be stored in lines, i.e. each channel in a separate cell of memory. So we have the direct access to the data from N channels, we can do their independent coding and transfer. If it is impossible to restore the data from some channels which have been corrupted, the data from other channels will be successfully decoded.

This method can be used for processing and transfer of audio signals, indications of gauges and in other spheres where it is necessary to transfer the data from several sources with high reliability and high speed.