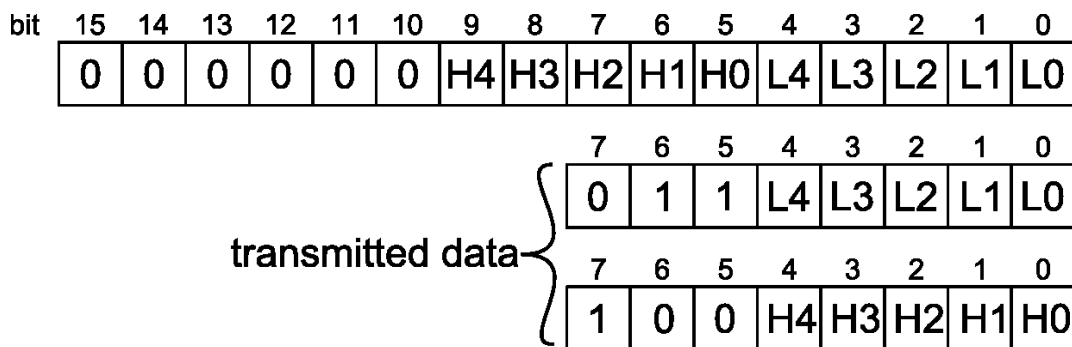


The visual data from the Readout board is transferred over a serial connection (using the UART/USB bridge) to the PC. The transmission starts with a predefined byte sequence indicating the start of a frame.

The frame itself consists of 42 times 15 values, where each value is a 10 bit value which is encoded in 2 bytes. We use a robust data transmission which is tolerant against data loss. Each byte transmitted over the serial connection consists of a 3bit counter entry and a 5bit data part. The counter is increased for every transmitted byte (cycling through values 0-7). The 10bit data values are split into their 5 high bits and 5 low bits.



Visual data encoding. top: bit structure of data to be transmitted. bottom: two bytes which encode the data and the counter.

This encoding allows to detect a loss of up to 7 bytes. Without this detection method a loss of data would corrupt the whole frame since the association of pixel position and data is lost. The encoding facilitates the detection of the number of missed bytes which makes it possible to assign the following received data to the correct pixel positions.

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