# Line Encoder and Scrambler

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## 1 | Introduction

Line encoding is the process of converting digital data to digital signals and decoding is the process of converting digital signals into digital data.
The Line encoding schemes and scrambling techniques implemented in this project are:
$\rightarrow NRZ-L \quad \rightarrow NRZ-I \quad \rightarrow Manchester \quad \rightarrow DifferentialManchester \quad \rightarrow AMI$
$\rightarrow HDB3 \quad \rightarrow B8ZS$

## 2 | Implementation

I have plotted the digital signal With the help of graphics library of C++ and implemented the logic behind encoding schemes using C++.

## 3 | Assumptions and Limitations

- All schemes(except NRZ-L) always start with a positive logic. In case of NRZ-L '0' is positive and '1' is negative.
- The amplitude varies between +A and -A.
- Number of bits entered is not more than 18.

## 4 | Instructions to run the program

If not already installed, install the Graphics Header file. On running the program, it prompts user to choose the type of string and the bits of the string, choose the encoding and if AMI is chosen, Choose whether scrambling is required and if yes, select the type of scrambling. On a separate window, the generated digital signal is plotted.

## 5 | Acknowledgement

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